amateur radio

JOURNAL OF THE WIRELESS INSTITUTE OF AUSTRALIA

VOL. 47, No. 2 FEBRUARY 1979

FEATURED IN THIS ISSUE:

- ★ CONVERTING AN HF LINEAR TO SIX METRES
- ★ BROADLY SPEAKING — A CHEAP HF BEAM ANTENNA
- ★ AIDS TO 70 cm FM
- ★ RTTY — QUIETEN A MODEL 15 ELECTRICALLY
- ★ WIA ROLE IN SPM

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This model uses a rugged die cast, and is specially designed to fill the need of a base station microphone with high modulation level capability. It is for use with all types of communication transmitter, transceivers, business radios and CB, etc.

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$8.50 METRE

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PO Box 2611W, GPO Melb., 3001

Copy is required by the **first of each month.** Acknowledgement may not be made unless specially requested. All important items should be sent by certified mail. The editor reserves the right to edit all material, including Letters to the Editor and Hamads, and reserves the right to refuse acceptance of any material, without specifying a reason.

Advertising: Material should be sent direct to **P.O. Box 150, Toorak, Vic., 3142, by the 25th of the second month preceding publication. Phone: (03) 24 8652.**—Hamads should be sent direct to **P.O. Box 150, Toorak, Vic., 3142, by the 1st of the month preceding publication.**

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amateur radio

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CONGRATULATORY PLAQUE

On 24th February, 1978, Graham Baker VK8GB established a first. This was a two-way contact on 2 metres with Noriteru Tajiri JH6TEW, as reported in VHF-UHF Notes in AR April and May, 1978.

The Japan Amateur Radio League was so deeply impressed with this contact that they honoured JH6TEW at the annual assembly at Kagoshima on 21st May and simultaneously struck a plaque for VK8GB, which was sent to the Federal office in Toorak to arrange a suitable presentation. This task was passed to the President of the Darwin Amateur Radio Club to execute.

The presentation was made by Senator Ted Robertson at a dinner held at the Travelodge Terrace Lounge in Darwin on Saturday, 30th September, in the presence of 43 members and their families.

The picture shows Graham receiving the plaque from the Senator, with Barry Burns VK8DI and Dick Klose VK8ZDK/NDK, President of the Club, as spectators. ■

Photo courtesy N.T. News Services Ltd. (see also page 42)

WIRELESS INSTITUTE OF AUSTRALIA

Federal President: Dr. D. A. Wardlaw VK3ADW

Federal Council:
VK1 Brig. R. K. Roseblade VK1QJ
VK2 Mr. T. I. Mills VK2ZTM
VK3 Mr. J. Payne VK3AED
VK4 Mr. N. F. Wilson VK4NP
VK5 Mr. I. J. Hunt VK5QX
VK6 Mr. N. R. Penfold VK6NE
VK7 Mr. P. D. Frith VK7PF

Staff: Mr. P. B. Dodd VK3CIF, Secretary.
Part-time: Col. C. W. Perry, Mrs. J. M. Seddon and Mr. P. Simmons (AR advertising).

Executive Office: P.O. Box 150, Toorak, Vic., 3142. 2/517 Toorak Rd., Toorak, Ph. (03) 24 8652.

Divisional information (all broadcasts are on Sundays unless otherwise stated):

ACT:
President — Mr. E. W. Howell VK1TH
Secretary — Mr. Ted Radclyffe VK1TR
Broadcasts— 3570 kHz & 146.5 MHz: 10.00Z.

NSW:
President — Mr. D. S. Thompson VK2BDT
Secretary — Mr. T. I. Mills VK2ZTM
Broadcasts— 1825, 3595, 7146 kHz, 28.47, 52.1, 52.525, 144.1, Ch. 6 and other relay stations: 01.00Z. (Also Sunday evenings 09.30Z and Hunter Branch, Mondays 09.30Z on 3570 kHz and ch. 3 and 6).

VIC.:
President — Mr. E. J. Buggee VK3ZZN
Secretary — Mr. J. A. Adcock VK3ACA
Broadcasts— 1825, 3600, 7135 kHz — 53.032 AM, 144.2 USB and 2m Ch. 2 (5) repeater: 10.30 local time.

QLD.:
President — Mr. A. J. Aarsse VK4QA
Secretary — Mr. W. L. Gielis VK4ABG
Broadcasts— 1825, 3580, 7146, 14342, 21175, 28400, kHz; 2m (Ch. 42, 48): 09.00 EST.

SA:
President — Mr. C. J. Hurst VK5HI
Secretary — Mr. C. M. Pearson VK5PE
Broadcasts— 1820, 3550, 7095, 14175 kHz; 28.5 and 53.1 MHz, 2m (Ch. 6): 09.00 S.A.T.

WA:
President — Mr. L. A. Ball VK6AN
Secretary — Mr. P. Savage VK6NCP
Broadcasts— 3600, 7080, 14100, 14175 kHz, 52.656 and 2m (Ch. 2): 01.30Z.

TAS.:
President — Mr. I. Nicholls VK7ZZ
Secretary — Mr. M. Hennessy VK7MC
Broadcasts— 3570, 7130 (AM) kHz with relays on 2m Ch. 2 (5), Ch. 6 (N), Ch. 3 (NW), 28.56 (AM), 52.525 (FM), 144.1 (AM) and 435 (FM) MHz 09.30 EST.

NT:
President — Dick Klose VK6ZDK
Vice-Pres. — Barry Burns VK8DI
Secretary — Graeme Challinor VK6GG
Broadcasts— Relay of VK5WI on 3.55 MHz and on 146.5 MHz at 2330Z. Slow morse transmission by VK8HA on 3.555 MHz at 1000Z almost every day.

Postal information:
VK1 — P.O. Box 46, Canberra, 2600.
VK2 — 14 Atchison St., Crows Nest, 2065 (Ph. (02) 43 5795 Tues & Thurs (10.00-14.00h).
VK3 — 412 Brunswick St., Fitzroy, 3065 (Ph. (03) 41 3535 Sat 10.00-12.00h).
VK4 — G.P.O. Box 638, Brisbane, 4001.
VK5 — G.P.O. Box 1234, Adelaide, 5001 — HQ at West Thebarton Rd., Thebarton (Ph. (08) 254 7442).
VK6 — G.P.O. Box N1002, Perth, 6001.
VK7 — P.O. Box 1010, Launceston, 7250.
VK8 — (incl. with VK5), Darwin AR Club, P.O. Box 37317, Winnellie, N.T., 5789.

Slow morse transmissions — most week-day evenings about 09.30Z onwards around 3550 kHz.

VK QSL BUREAUX

The following is the official list of VK QSL Bureaux, all are inwards and outwards unless otherwise stated.

VK1 — QSL Officer, G.P.O. Box 1173, Canberra, A.C.T. 2601.
VK2 — QSL Bureau, C/- Hunter Branch, P.O. Teralba, N.S.W. 2284.
VK3 — Inwards QSL Bureau, Mr. E. Trebilcock, 340 Gillies Street, Thornbury, Vic. 3071.
VK3 — Outwards QSL Bureau, Mr. R. R. Prowse, 83 Brewer Road, Bentleigh, Vic. 3204.
VK4 — QSL Officer, G.P.O. Box 638, Brisbane, Qld., 4001.
VK5 — QSL Bureau, Mr. Geo. Luxon VK5RX, 203 Belair Road, Torrens Park, S.A. 5062.
VK6 — QSL Bureau, Mr. J. Rumble VK6RU, G.P.O. Box F319, Perth, W.A. 6001.
VK7 — QSL Bureau, G.P.O. Box 371D, Hobart, Tas. 7001.
VK8 — QSL Bureau, C/- VK8HA, P.O. Box 1418, Darwin, N.T. 5794.
VK9, 0 — Federal QSL Bureau, 23 Landale Street, Box Hill, Vic. 3128.

QSP

"OVER-REGULATION"

If there were no regulations controlling Radio Telecommunications inevitably a situation would arise which would be absolutely chaotic. This ensuing chaos would mean that the Radio Frequency spectrum could only be utilised in a most inefficient way.

At an international level this is what WARC 79 is all about.

In Australia the Wireless Telegraphy Act and associated Radio Regulations, amongst other things, provides for the organised use of the Radio Frequency spectrum, even though some of their aspects are outdated.

The Amateur Service, like all other services in this country, is subject to this Act and its regulations.

The last Australian Handbook for Operators of Radio Stations in the Amateur Service was published twelve years ago, and has been reprinted on many occasions. It appears that no further reprints are feasible. It is the Institute's view, which has received some official support, that the Amateur Service should be as self-regulatory as possible.

It is reasonable, for example, to state in regulations what frequencies, transmitter power, and types of emission may be used. Also regulations to protect all users, including other Amateurs, from spurious emissions and sub-standard transmissions are also desirable.

Certain other conditions, such as what type of messages a particular service might handle, are to some degree a matter of government policy.

In the framing of regulations for the Amateur Service the Institute feels strongly that they must be in a form that indicates concisely what is required, are readily remembered and in application uncomplicated.

This is particularly important as the newcomer must fully appreciate the regulations and the reasons for certain inclusions.

Again it is the Institute's view, which has been conveyed to the Department, that the Amateur Service should not be hamstrung by unnecessarily complicated regulations, particularly when a much simpler means would produce the same result.

What are the reasons which prompt governments to over-regulate in any particular area? We can all name many reasons, but in reference to the Amateur Service we believe one reason might stand out — the irresponsible use of amateur radio by some operators.

Is it right that the shortcomings of the few — and the numbers are indeed small — should penalise the many?

DAVID WARDLAW VK3ADW,
Federal President. ■

WIANEWS

The appeal to non-members to donate something towards the WIA costs involved with WARC 79 is producing results. In addition to actual donations received a number requested membership forms to join the Institute. A similar appeal was published in the Electronics press. Donations from non-members will be acknowledged in due course.

It is encouraging to observe that many members included a WARC donation when paying their annual dues. A list will be published as soon as possible.

Over the holiday period the Executive office had been inundated with subscriptions payments. A preliminary survey indicates that compared with previous years a greater percentage of members are paying earlier. At the same time the number of individual payments are well in excess of previous years. This is to be expected having regard to the greatly increased membership.

IF YOU HAVE NOT YET PAID YOUR 1979 DUES, PLEASE DO SO NOW TO AVOID DISAPPOINTMENTS SUCH AS THE DISCONTINUANCE OF AR — THE COMPUTER IS QUITE IMPERSONAL.

Strength in numbers is a "must" in the world of negotiations. The discussions on the new Handbook for Amateur station operations proceeded briskly. A few days before Christmas a copy of the latest revision was handed to the WIA but it was marked not for publication". The attitude of the Department appears to indicate that publication means the date when it comes from the printer and is released for general sale. If, for any reason, there is a delay in printing it, the final edition could be amended even further if circumstances require.

There are numerous amendments and concessions granted in the latest revision compared with the draft originally discussed last November. In so important a document every word counts and members will be pleased to know that every word was "counted".

REPORTS OF MEETINGS

The Publications Committee meeting on 5th December noted with regret the passing of our printer, Eric McAdam of Equity Press, earlier the same day. Disposal of the extra 1000 run of the December issue was discussed. Awards for 1978 were agreed and details appear elsewhere in this issue. The dearth of front cover photos for AR was again discussed. The Executive meeting on 13th December spent time on discussing the Handbook revisions and how best to utilise the $3,500 received for educational purposes. No final decision was reached on the latter except the consensus of opinion is that donations of cash to clubs could possibly lead to frittering the money away. Thoughts crystallised to some extent on the production of educational aids possibly in the form of brochures, leaflets and visual aid material.

A short discussion about band planning the 23 cm band ran straight into the very real problem that the amateur service is the secondary service and must avoid interference to the primary user. A month-to-month lease on the office, as required by the landlord, was approved.

Meetings of the Project Asert Committee were held on 22nd November and 18th December under the chairmanship of Bob Arnold VK3ZBB. Slow but steady progress was reported but more interest was required. By the time this appears in print recording stations in VK7, VK3 and VK5 should be operational.

WICEN

The following is the text of letter RB53/2/1 recently received from the Department —

"In confirmation of our discussions on 22 November 1978 the following revised conditions for the operation of Emergency Amateur Networks and the requirements for the conduct of practice exercises have been notified to our

State Superintendent for introduction on a trial basis. It is proposed that these conditions, modified where necessary, will be printed in the next edition of the Amateur Handbook.

It should be noted that practice exercises are to be considered as primarily a means of training operators in the passing and recording of messages.

1. With the approval of an authorised officer of the Department, the licensee of an amateur station may, as a member of an organisation of amateurs approved by the Department, participate in special amateur radio communications networks in times of civil emergency or disaster.
2. During a period of emergency, such networks, through a nominated co-ordinator and control station, may pass messages on behalf of the statutory authority responsible for the particular emergency (e.g. bush fire, flood, etc.). The log book of the control station shall have entered in it the name, rank, or position and telephone number of the officer of the statutory authority who requested the communications assistance, and the name and position of the Postal and Telecommunications Department officer who authorised the transmission of third party messages. (See Wireless Telegraphy Regulation 36 (3).)
3. During the period of the emergency, the licensee shall confine his transmission to those necessary for the exchange of essential traffic. Casual conversation or unnecessary calling or testing should be avoided. Any necessary testing should be conducted on a frequency separate from that used for emergency communications. Correct procedures as detailed in the Handbook should be adhered to during the emergency working.
4. Copies of messages handled by all stations in the emergency network should be retained for 12 months.
5. A licensee not participating in an actual emergency network once aware that an emergency exists should ensure any transmissions he makes do not cause interference to any stations involved in emergency communications.
6. Exercises by organisations mentioned in paragraph 1 above, to enable members to obtain practice in passing and recording messages, may be permitted, following written application to and approval by the Superintendent, Regulatory and Licensing. As a general rule the following conditions will be applied:
   (a) Applications should reach the Superintendent at least two weeks prior to the exercise, indicating time, date, benefits expected, frequency, location, etc.;
   (b) In any case where the exercise is to consist of providing communications for a group, the group must be either a statutory authority (fire, State emergency service, etc.) or a recognised community service group or charitable organisation (e.g. Apex, Rotary, Red Cross);
   (c) The Amateur organisation should not be involved in press or media promotion;
   (d) A report on the exercise as a message handling experience is to be provided to the Superintendent by the co-ordinator within two weeks, accompanied by a sample of message forms from the exercise;
   (e) Log book of control station is to be submitted for Departmental inspection from time to time;
   (f) Abbreviated call signs not permitted — full identification to be used by all participants; and
   (g) The use of any specific frequency should not cause interference to other stations already in contact."

■

WIA 1979 SUBSCRIPTIONS

These are the 1979 subscription rates:—

	$	Grades
VK1	21.00	All
VK2	20.00	Full
	18.00	Associate
	15.00	Student (proof required)
	10.00	Pensioner*
	10.00	Family (no AR)
VK3	23.00	Full
	20.00	Associate
	12.00	Student (proof required)
	12.00	Pensioner*
	15.80	Full Family (no AR)
	12.80	Associate Family (no AR)
VK4	20.00	Full
	18.50	Associate
	7.50	Student (proof required)
	13.00	Pensioner*
	13.00	Club (with AR)
	5.00	Club (no AR)
VK5	23.00	Full City
	20.50	Full Country and Associates
	11.50	Student (proof required)
	11.50	Pensioner*
	4.50	Family (no AR)
VK6	20.50	Full
	19.50	Associate
	12.50	Student (proof required)
	12.50	Pensioner*
VK7	20.00	Full and Associate
	10.00	Student (proof required)
	10.00	Pensioner*

* Pensioners — only as graded or re-graded by your Division.

New members, add joining fees:
VK2 — $2.00; VK7 — $1.00.

Federal dues (unchanged since 1976) included in the above rates as appropriate are —

Exec.	$7.50
IARU	0.30
AR	7.20
Total Federal	$15.00

■

QSP

MEMBERSHIP CERTIFICATES

Members, especially new members, are asked to note that membership certificates are issued free by Divisions and are signed by Divisional Presidents. No grade of membership is shown on certificates and they are valid only as long as the member remains financial. ■

AR AWARDS

The Publications Committee has pleasure in advising the names of the recipients of awards for the year 1978.

HIGGINBOTHAM AWARD

Mr. S. Voron VK2BVS — For general amateur radio work for publications inclusive of contributions to AR. Worth $50.00 p.a.

TECHNICAL AWARD

Mr. Roy Hartkopf VK3AOH — Presented for the best adjudged technical contribution to AR. Worth $25.00 p.a.

ASJA (Al Shawsmith Journalistic Award)

Mr. P. Arriens VK1PA. Worth $15 p.a. and an engraved plaque for the best adjudged piece of amateur radio journalism in AR.

■

MIDLAND ZONE CONVENTION

Don't forget the Annual Convention of the Midland Zone to be held at the Strathfieldsay Hall (8 km from Bendigo, on the Eppalock Road), on Sunday 25.2.79, at 10.00 a.m.

Talk-in facilities 80m, 10m, Ch. 4 FM.

Good range of equipment on display, competitions, good prizes, barbecue lunch supplied. ■

SUPERB KITS from DENMARK

Additional high quality kits coming soon !

JOSTYKIT is Europe's leading manufacturer of electronic kits featuring attractively styled boxes of Scandinavian design and high quality electronic components which will satisfy the most demanding kit builder.

JOSTYKIT's staff of qualified electronic engineers and educationalists supply up-to-the-minute, reliable electronic kits, designed around space-age solid state technology, but capable of construction without any great technical know-how or practical experience.

The JOSTYKIT instruction booklets supplied with each kit give clear, precise directions for assembly and testing. For those with special technical interests, each instruction booklet ends up by describing how the kit works. You'll always learn something when you construct a kit from JOSTYKIT.

Audio

AF300 AUDIO AMPLIFIER – 3 WATTS

A real work-horse., this universal power amp has a wide range of applications such as car radio, record players and small receivers. Due to its well designed electronic circuit, the AF300 can be used over wide voltage ranges without deterioration of the specification parameters.

Kit AF300 . . . . . $25.00

AF340 40 WATT AUDIO AMPLIFIER MODULE

High quality 20-20,000 Hz, 37w RMS with low distortion.

Kit AF340 . . . . . $35.00

FM Tuners

HF325-2 QUALITY FM TUNER MODULE

The HF325 is a complete high quality FM tuner of professional standing. The tuner unit is ready-made and pretrimmed, making it child's play to assemble. Tuning range 88-108 MHz, operating voltage 12-55v ac.

Kit HF325 . . . . . $79.00
Stereo decoder HF310 . . . . . $24.00

HF310 FM RECEIVER

The HF310 is a very reasonably priced HF FM tuner. Fully trimmed, the sensitivity according to IHF standards is better than 10uV. Features 60 dB S/N radio and low harmonic distortion.

Kit HF310 . . . . . $49.00

HF330 STEREO DECODER

Gives 40-45 dB channel separation, just add to a good quality FM receiver.

Kit HF330 . . . . . $24.00

Pre-amps (RF)

HF395 RF PREAMPLIFIER

Gain 30 dB to 20 MHz, 10 dB to 100 MHz and 5 dB to 225 MHz. Ideal to boost reception on short-wave receivers.

Kit HF395 . . . . . $6.00

HF385 VHF/UHF ANTENNA PREAMP

Superb quality with two aerial inputs and one down lead which simultaneously supplies current from the power supply. Frequency range 40-250 MHz and 400-820 MHz. Gain 9-18 dB, depending on frequency.

Kit 385 . . . . . $30.00
Box B850 . . . . . $6.00
Optional Power Supply NT410 . . . . . $20.00

Quick assembly kits

JK01	GENERAL PURPOSE AMP 0.5w.	$18.00
JK02	MICROPHONE AMPLIFIER	$19.00
JK03	SINE WAVE GENERATOR 20-20,000 Hz	$30.00
JK04	FM TUNER 88-108 MHz	$30.00
JK05	27 MHz RECEIVER	$33.00
JK06	27 MHz TRANSMITTER	$29.00
JK07	DUAL TONE DECODER FOR R/C MODELS	$43.00
JK08	240 Vac LIGHT OPERATED RELAY	$20.00
JK09	SIREN KIT inc. SPEAKER	$19.00
JK10	PHOTOGRAPHIC TIMBER 240 Vac.	$23.00
JK101	BURGLAR ALARM KIT	$55.00

Light Shows

AT465 LIGHT SHOW

Turn your music into light. Simply connect this 3 channel light show to the audio terminals of your amplifier and this quality kit does the rest for you!

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CONVERTING AN HF LINEAR TO SIX METRE OPERATION

S. Gregory VK3OT
P.O. Box 414, Hamilton 3300, Vic.

This project was brought about by the frustration of living hundreds of miles out from capital cities and being unable to alert stations occupying 6 metres of my presence.

Melbourne in particular has a very high "crud" level, generated by Channel O, with which operators have to contend; this noise tends to make intrastate communicating on 6 metres difficult to say the least. The extended ground wave paths on east-west circuits can be pushed out to over two hundred miles if good receiving equipment is used, with power levels above 100 watts to at least a four element yagi. So to those who consider any VHF power linear, please look to your receiving department first, as it is quite fruitless for an operator to read you 5 x 5 with your high power, if you have a "deaf" receiver.

There are several good low noise pre-amplifiers for both 6 and 2 metres which give an excellent lift to an ailing front end, also post converter amplifiers as featured in the early VK3 converters can add lift to the transceiver on the 10 metre band and provide a useful pre-amp. for 10 metres during non-six metre activity. At this QTH a 3N210 dual gate FET pre-amp. is incorporated into the transverter, with an RF gain facility adjusting the bias on one of the gates, whilst the post converter amplifier is a 3SK140. High power is not required for most summer sporadic E conditions. This article is for the serious long haul and back scatter, meteor scatter and forward scatter operators.

Well how do you modify a HF linear amp to the VHF 6 metre band? First, I guess, you obtain or have the necessary amplifier, which is now not so easy in Australia. I'm always being told that because the HF conditions are so good you don't need "boots" any more, so why not convert yours to 6 and convert it back when the sunspots die in a few years time? I decided to axe the station FL2100B after months of indecision, and I'll tell you after the first silver-plated capacitor is removed it doesn't hurt a bit. I found out a few truths about construction which are hidden by the green paint and tinsel, but that's another story.

The first things to go were the PA tank circuit components, valves, RF choke, bandswitch and coils; left are the two capacitors for load and tune. The removal of all these components was achieved with very little unsoldering and a small amount of unbolting. After removing the coil assembly the ten metre tank coil, which is a separate air wound inductor, was disconnected and put to one side. For those with queasy stomachs buy a foot of 3/16 in. copper tube. The new final tank coil is about four turns of above size the same diameter as the ten metre tank but with two turns air spaced instead of one. This can readily be achieved by expanding out the ten metre coil to twice its length (you can always squeeze it back again!).

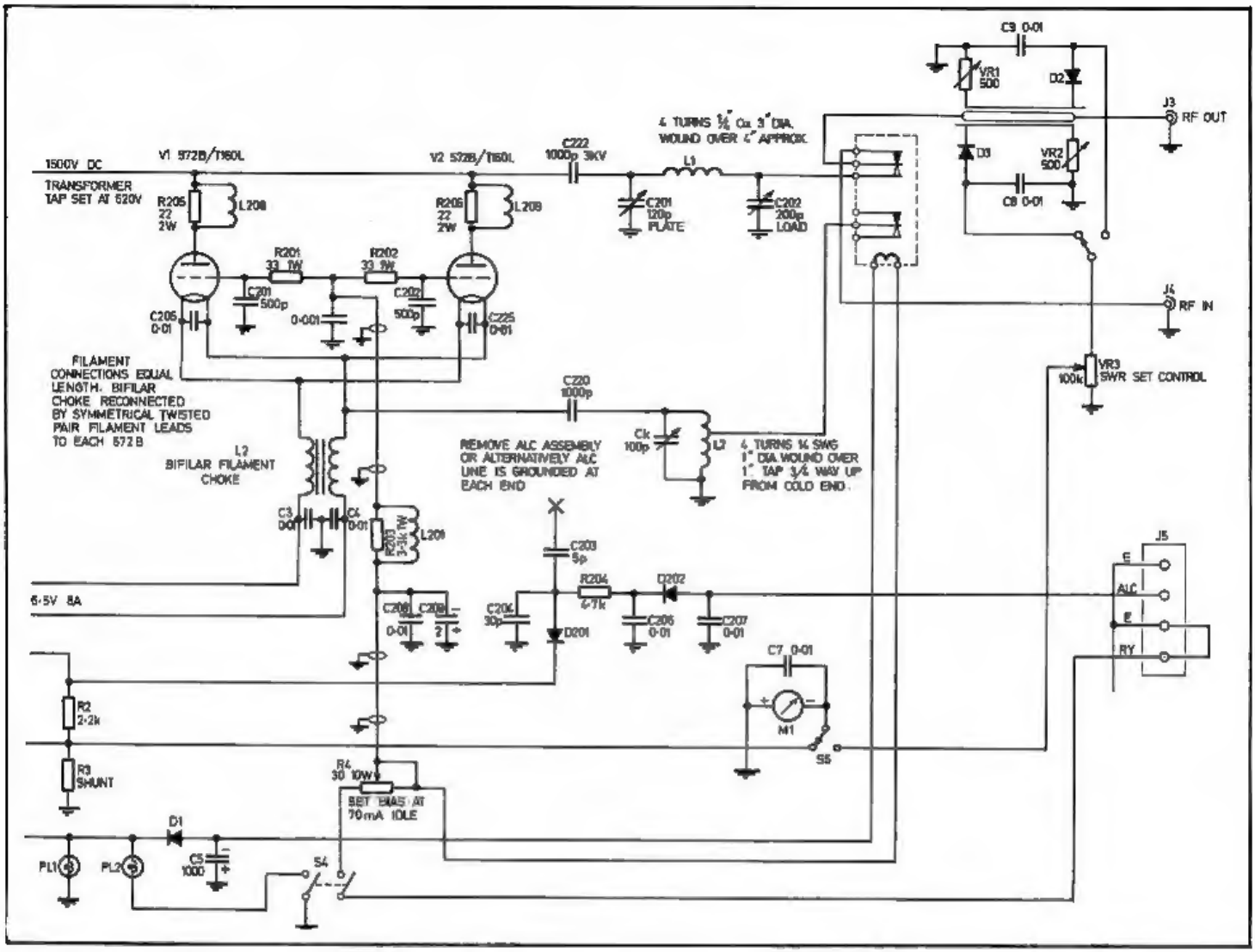


FIGURE 1: Modified FL2000/FL2100B Circuit

Next the RF choke, which is also a mechanical support for the anode leads of the 572B triodes, was replaced. This requires duplicating mechanically the existing structure or remove the windings of the choke and rewind with suitable material to the correct dimensions. I used 30 turns of 18 gauge enamelled copper wire on a ¾ in. ceramic or teflon former wound with one turn spacing over approximately 4 in. The existing choke is a pi wound multiband unit with a top frequency of 30 MHz. It will work in a sense but not for long. The ten metre section will overheat and become discoloured, then the insulation will break down — and 572Bs are $55 each. Enough said. The bypass capacitor, 1000 pF 3000 VDCW fitted below the cold end of the RFC, was retained.

The coupling capacitor can remain the same 1000 pF unit fitted to the end of the RFC. Two 470 pF give a slight improvement in performance because their reactance at 50 MHz is 6 ohms compared

SPECIFICATIONS	**FL2100B/6**	**Gain = 12 dB**
	Class B Grounded Grid (RF)	
2 x 572B/T160 Triodes	**Carrier**	**Two Tone**
Va = 1500V* DC		
Anode Current = (2 Tubes)	20W PEP	425 W PEP
Power Input (DC)	750 watts†	350 mA
Grid Current (including idle)	75 mA	50 mA
Volts Drive	65 RMS	64 RMS
RF Driver Ouptut (approx.)	20 W PEP	25 W PEP
Anode Dissipation	320 W	310 W
Power Out (average)	430 W	215 W
Power Out (PEP), including Drive	430 W	425 W PEP†
Power In (PEP)	750 W PEP	735 W PEP
% Efficiency, including Drive	57.2%	57.5%*

* This figure due to reduction in duty cycle and regulation of anode voltage which fluctuates between 1700V no load to 1400V full load.

† These figures exceed those allowed by P. and T. regulations.—Editor.)

with about 24 for the 1000 pF unit, however since the PA runs in Class B Grounded Grid, it was not expected to have any regeneration in the circuit.

Unfortunately this was not to be; more on the reasons and remedies later.

The two 572B/T160 triodes were mounted back into the PA cage. A Grid Dip meter showed that the range of the tuning with the parallel tube configuration was 30-70 MHz, depending on the setting of the load and tune capacitors. The cathode circuitry was modified by removing all the bandswitching components and bypass capacitors to reveal the filament wiring and ALC circuitry.

It was found necessary to remove all of this circuitry. I did not do this initially and found that C203 of the original circuit introduced instability due to a positive feedback path through the ALC system. The driving stage should be carefully adjusted to minimise overdriving and distortion. The whole plate with all the HF coils was removed; all the capacitors whether soldered or bolted were also taken out. The filament wiring was removed due to its unbalanced configuration. A new loom was made up from heavy insulated wire, twisted equal lengths, soldered to the socket pins and returned to the bifiliar RFC filament feeds.

A four turns airspace coil wound over one inch was constructed of 18 gauge wire followed by the mounting of an Eddystone 100 pF silver-plated variable capacitor in the hole vacated by the bandswitch.

The coil was soldered into place and a 1000 pF coupling capacitor connected between the variable capacitor and the filament choke. See Fig. 1.

The frequency of resonance was checked with a GDO to see that it covered the required range. A fibreglass shaft coupled through to the front panel was fitted with the original band change knob. You cannot tell what changes are inside, that's for sure.

At this stage I did a little detailed reading on how to set up G-G linears and found out that you don't run drive without plate voltage applied so I left the matching of the driver till later. I fitted four capacitors from the original parts back into the cathode enclosure for bypassing the grid. Bias is applied for normal standing current, and I had to make sure that it was down to earth for RF at 6 metres. This was achieved by using two of the 250 pF and two of the 200 pF coaxial chassis mount capacitors. The two 33 ohm grid stoppers were left in but their junction was bypassed with another 1000 pF disc ceramic. C205 and C225 were changed to 1000 pF disc whilst C200 and C202 in the grids were removed and replaced with the coaxial combinations. I noticed the bias feed wire was an unshielded piece of hook-up wire so I used the shielded ALC wire to feed the cathode enclosure with the bias required. The tagstrip containing the ALC diodes was removed and the one containing the grid stoppers and bias feed choke was altered to allow better symmetry in the layout.

I dipped the cathode coil again and then set about hooking up the transverter feed tap. With the help of Orr and Johnstone I discovered that the cathode impedance is about 150 ohms for grounded grid and that a suitable driver tapping point would be about ¾ of the way up the input coil. With this done the rear section enclosure was boxed up to avoid coupling and possible feedback. I then set the secondary tap to the lowest position, 425V AC, which gives around 1100 volts on the anodes.

The top cover of the PA cage operates a HT interlock, so it has to be replaced before any testing is done. It also removes the temptation to prod, which is unnecessary if you've done your ground work; dangerous, too.

The first turn on showed no shorts or other gremlins, so an SWR meter was connected between the transverter and the linear amp and drive applied with HT. A check showed about 2 : 1, so the unit was switched off and the tap in the cathode coil accessed and moved a quarter of a turn down. Several adjustments later resulted in a 1 : 1 match with the loading control of the FTV650B about mid-scale (50 ohms).

Next the operate switch was pressed and the PA current idle checked at about 60 mA. Slowly a little drive was applied and the output current showed a rise to 200 mA. A bit of a fiddle with the plate tuning showed a dip and some power in the watt meter connected to the output socket. The load control gave a rise in output but reached the clockwise stop; investigation showed minimum capacity but two sections in service. One lead was snipped off leaving 250 pF across the output of the PI. A further run up showed a better figure at mid-scale for maximum output and the rest is history. The darn thing tuned up like any HF linear and was giving about 200 watts of carrier into the watt meter. Adjusting the cathode tuning cum bandswitch control gave a very lazy increase, peaking about 2/3 scale (15 metre band).

Next some two tone was supplied to the transceiver and the output viewed on a scope. It was quie clean and showed about 200W PEP on the scale — not bad for the low tap.

The medium tap gave 1700 volts to the plates at an idle of 80 mA and this with drive gave the magic numbers at two tone application 400 watts PEP on six metres for about 500 mA at 1500 volts. The regulation of the power supplies in those so-called super linears is very poor and would cause a few linearity problems in a tetrode stage.

A check on the highest tap showed only a 50 per cent power increase but considerable extra heating of the final tubes. At 550 watts out the tubes were looking like the evening sun. On the 1700 tap with a single tone at 400 mA with the lights out the tubes were black, and that looked good for continuous service.

So there it sits on the table, a small unobtrusive box about ¼ the size of the old 3ZAZ monstrosity with no noise and the magic numbers out on six metres.

The bandwidth of operation was good for the 500 kHz of the transceiver without retuning, which I think is a product of the low impedance cathode circuitry.

I found that 750 watts input could be achieved from 25 watts of excitation. Efficiency was 52 per cent after subtracting the drive power, and the transformer taps were 234V AC and 620V AC respectively. The maximum DC input power achieved was a little over 800 watts in the cherry red, so as to speak, so it is recommended that SSB modes only be used with this configuration.

I ran under test at 400 PEP for lengthy periods with no ill effects or over-heating, and found out not just how much power it put out, but how clean it was.

The third order products on the analyser were the same as those of the transverter, approximately 30 dB down, which means the linear contributed nothing to degrade the products. Second harmonic was an expected 45 dB below. These tests were at full output. Remember to tune for maximum output and then reduce drive to keep within legality. Two tone tuning with a scope is the only way to correctly tune any linear amplifier, and this one is no exception. It is the only way to achieve correct loading conditions and clean operation. I have fitted a small pot to the transverter drive supply to accurately set for full 400 PEP performance and the results on air are very encouraging. The dip in PA current at peak output is very shallow and not readily noticed. Maximum output should occur at minimum plate current and, if you had a grid monitor, maximum grid current.

The antenna changeover relay leaves a lot to be desired. However, due to the facility of linear/barefoot operation at the flick of a switch, I am yet to find a suitable coaxial combination that would not be cumbersome and yet still do the trick.

All in all the project was successful and relatively cheap if you discount the cost of the linear amp. Any HF amp could be modified, it's only the layouts which present any problems. The SB200 and Dentron Superamp would also be suitable; however a bit more thought would have to go into converting the 4 tube FL200 using 6KD6s.

Eimac 8875 triodes are obviously the next choice, but after using and hearing the silence of the Yaesu fans, I would not ever tread the high speed blower path again.

If anyone blows up the tank circuit of their FL2100b I know someone who has a box of spares; see you on 6m. ■

AIDS TO 70 cm FM

Recently an article appeared in AR on VK3RAD, the 70cm repeater operating in Melbourne. This article may be looked upon as a follow-up to that article as an aid to amateurs wishing to make 70cm FM another of their modes of operation.

All 2 metre FM users may use their transceivers to form the heart of a 70 cm FM transceiver. There are three main avenues to follow and these are discussed in turn.

METHOD 1:

EXISTING 10 WATT 2 METRE TRANSCEIVER

By preparing a case approximately the same size as the 2 metre rig a very pleasing mobile unit can be realized. All switching and control is done via a small plug in the rear of the existing 2 metre transceiver. All DC can be switched by a small relay of conventional design but the antenna must be switched by a coaxial relay. The general arrangement is shown in Fig. 1. The 435 MHz converter can be arranged to have its output on any convenient channel preferably one not frequently in use. Of course the transmit frequency will be 1/3rd of the desired 435 MHz frequency and the transmit crystal will have to be selected accordingly.

This system will provide approximately 4 to 6 watts at 435 MHz, depending on the varactor.

METHOD 2:

EXISTING LOW POWER (HAND HELD) 2 METRE TRANSCEIVER

The same method can be applied, remembering that for 1 to 3 watts on 2 metres only 1/3rd to 1½ watts will be obtained on 70 cm. One amateur using this system uses a three transistor amplifier to increase the ¾ watt output to 20 watts at 70 cm. The home-brewer could use the 2 watt exciter described in "Amateur Building Blocks" in AR October 1975.

METHOD 3:

COMPLETE 435 MHz UNIT

This entails some design and quite a bit of thought but is well within the ability of any avid home constructor. Frequency multiplication is particularly troublesome and up to 200 MHz MOSFET multipliers are suggested. Avoid joining PC boards of the transmitter with coax. The transmitter should be built as one unit and not an "add on" bits.

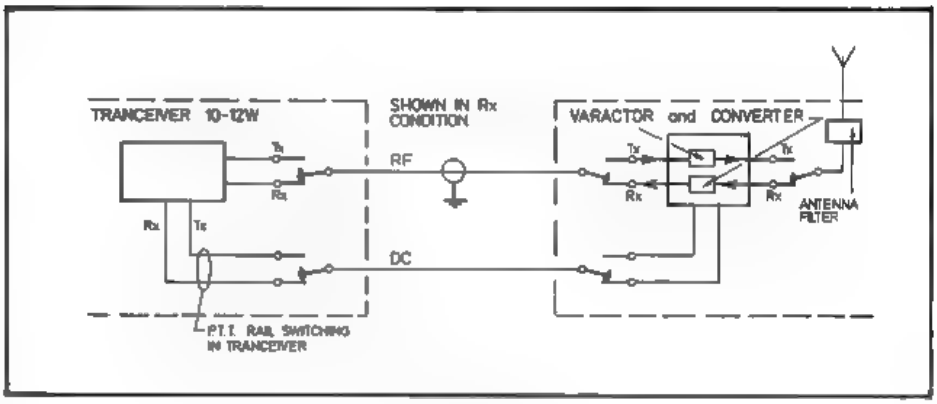


FIG. 1: Using an existing transceiver

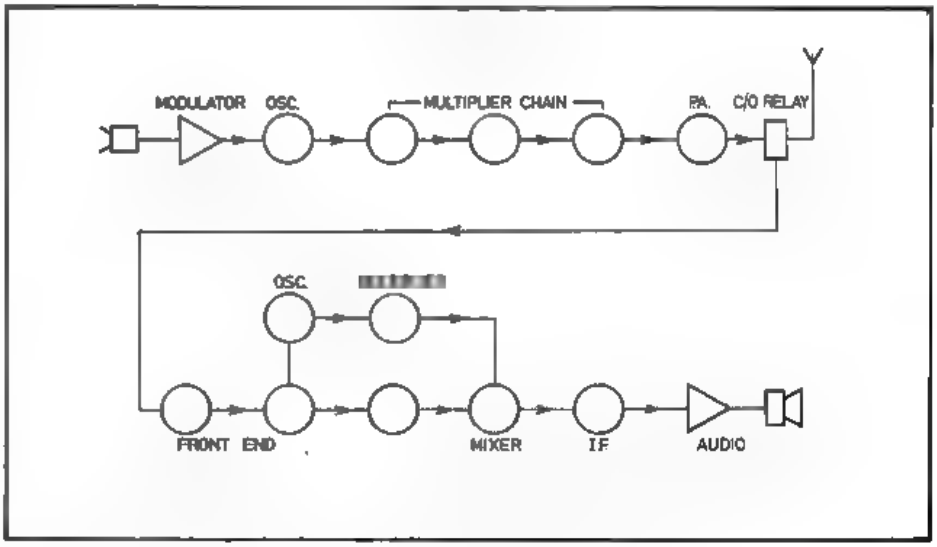


FIG. 2: 435 MHz FM Transceiver

Low noise devices for the receiver front end are of course a must. The 3N210 is a good choice. Stripline tuned circuits are most satisfactory.

The ATV converter, at present very popular in Melbourne, works very well in FM service if fitted with a source injected mixer (2N5245, TIS88, etc.) and crystal oscillator injection chain.

This article has been kept as non-technical as possible so as not to overwhelm the newcomer to UHF. Incidentally, although only solid state systems have been discussed, a "retired" valve transceiver may usefully be pressed into service. ■

BROADLY SPEAKING

Steve Bushell VK3BHK
74 King Pde., Knoxfield, 3180

About four years ago when the bottom suddenly dropped out of the F layer, I decided something better than a G5RV was needed for consistent DX.

I turned to a rotatable 20 metre dipole. This gave better results as far as directivity was concerned but it left a lot to be desired in the way of gain. After a bit of snooping, on air and off, I decided that to attain my goal of consistent DX, beaming my signal at a low angle was essential and that either a yagi or quad was called for.

Goodness only knows how many other Hams have reached the same conclusion over the past 70 years, but so what. I wasn't around then and this I reckoned was what Amateur Radio is about today; doing something a little better for oneself, rather than thrashing off and buying an XYZ umpteen element dragpole.

Well where to start? Quad or yagi? Aesthetically I favoured a yagi and despite strong opposition from Col VK3CO and Laury VK3AW, both fanatical quadlodites, a yagi arrangement was decided upon.

It seemed fairly straight forward, but not so. By this time, DX was beginning to reappear and according to Leonardo VK3NAC, our Oracle of the F layer, not only was 20 metres going to bust right open again, but 15 and 10 were going to become the playgrounds of Novice DXers in the not too distant future.

Well, 15 and 10 were still pretty crook so I decided to concentrate on a monoband job for 20. The design was pretty straight forward drawing on what every Ham learns before he gets his ticket, and so without much ado a design rolled off the roughly cleared space on my operating desk.

Looked good, but how to feed it? Coax and balun, T-match, Delta or any one of the even more elaborate systems? My tower is over 50 metres from the RF source. 50 times $2.00 for good low loss coax wouldn't register on my hip pocket nerve. Coax was a definite NO! What then?

Dare I remember what used to be in the dim dark days pre-coax?

"Open Wire Tuned Feeders."

Cost — minimal. Line loss — minimal. Efficiency — plus. And, after all, the majority of high power transmitters still employ them.

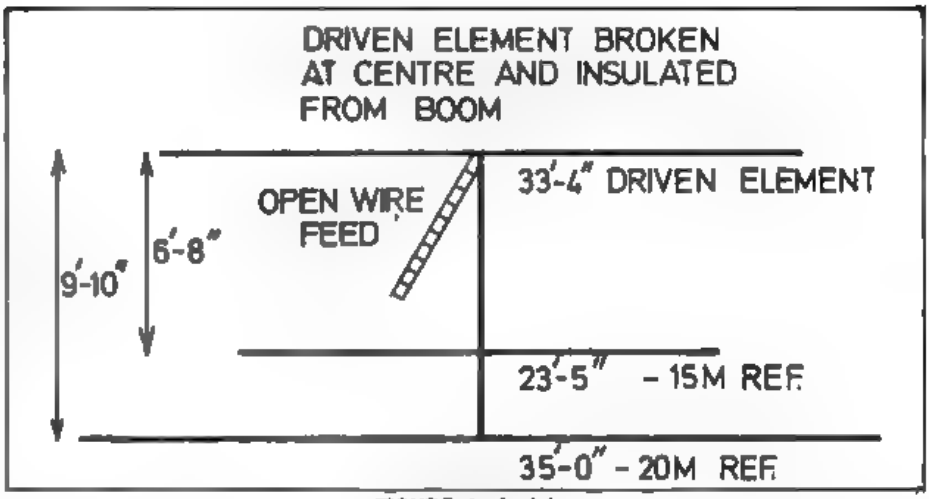


FIGURE 1: Aerial

It took about a week to get all the bits I needed together, aluminium, tube in various diameters, muffler clamps to suit, PVC insulation, nuts, bolts, and so on. Then one Saturday, after lunch, out came the hacksaw, drill, wrench and off to work. The whole job took that afternoon to complete, then up on to the pole and the last nut was tightened. Into the shack and on with the rig.

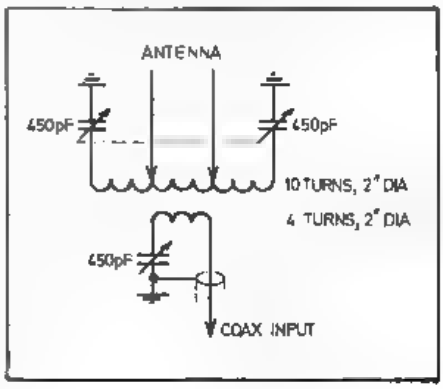
I made sure the audio was backed well off, I didn't want to hear my latest failure. Around went the aerial rotator indicator toward South America short path. This I felt would be the optimum test for my bright new home-brew two element close spaced full size 20 metre monobander because on previous wire aerials I had never even heard a South American station.

Up went the audio and after a short twist of the dial in came Rio De Janeiro at S8. Yours truly was nonplussed.

After recovering from this initial flush of success I swung the beam up over Africa and into Spain. In came EA at similar strength. Then up to France. Wherever I pointed it in came the country concerned and at extra good strength. But would it work as well both ways, receive and transmit?

It didn't take long to find the answer. Yes! Not only did it receive well but it transmitted with equal success. Many good reports were received and exchanged over the next couple of months and bulk DX was worked. VSWR was a genuine 1:1 from 14.00 to 14.35. Naturally, I was running open wire line into a matching unit — a completely tuned system.

Not like a coax-balun set-up where you establish a centre frequency then accept fall off either side and consequent reduction of efficiency. The months rolled by and I became rather blase about the whole



business of beaming signals. Although I was enjoying good DX when all the other w re antenna men were scratching to hear over the back fence, I felt there must be more to life than 20 metres.

Remembering what VK3NAC had predicted for 15 and 10 metres, I switched from 20 to 15 one evening to see if anything was happening. Much to my surprise, Len had been right (after all, some doubt could be expected, he had been predicting a rise in the K index for the last 18 months). Europe was coming in at S4. Not as strong as 20 metres but pretty good considering my system was tuned for 20.

Well, reckoned I, if I am running a tuned system why not tune it to 15 metres? That I did and in came Europe at S6. Not bad, but still not as good as 20 metres and the beam width was rather broad.

Next day at work I joined heads with Col VK3LO on the subject and between us we decided the driven element was acting like an extended zepp on 15 metres and that any directivity on this band was not due to the 20 metre reflector which was too far back from the driven element. After a bit of snooping on 15 and hearing VK3NAC and his QRP novice mates working 15 metre DX at the same strength as my 300 watts I decided modification to the now semi-duo-bander was needed.

Up went a 15 metre reflector 0.15 of a wavelength from the driven element and up with it came the signal strength I was looking for. In fact, that night I worked two countries I had never heard on 20. If what Len had predicted for 15 was now materializing, how then was 10 metres going?

Just to make sure the beam was OK on 10 I arranged a sked with Laury VK3AW, who was running a full wave loop on 10. After extensive checks we decided the 15 metre reflector was close enough to the driven element to give me good forward gain and a very good front to back ratio but, alack and alas, 10 was still in pretty poor shape.

So, now I had made what started out as a monobander into an extremely efficient tribander and at a great saving in legal tender. All up cost was only $45. It had very good forward gains on 20, 15 and 10, and a 1:1 VSWR right across each band.

Although this aerial is not really for those with a small flat, it does sound real sweet and when it's about 15 metres in the air it doesn't really look too bad — to a Ham anyway! ■

QUIETEN A MODEL 15 — ELECTRICALLY!

(Reprinted from AARTG RTTY Newsletter No. 8, May 1978)

Barry Ross VK6IF
42 Mayflower Cres. Craigie, 6025

If you were to ask most amateurs with Model 15s how to quieten one they probably say to take it as far away as possible, preferably down the bottom of the garden. But that is acoustic noise and if you know how to cure that many amateurs would like to know! A Model 15 with a governed motor also produces a lot of electrical noise too, capable of blotting out DX. This article is on how to reduce, if not eliminate, this noise.

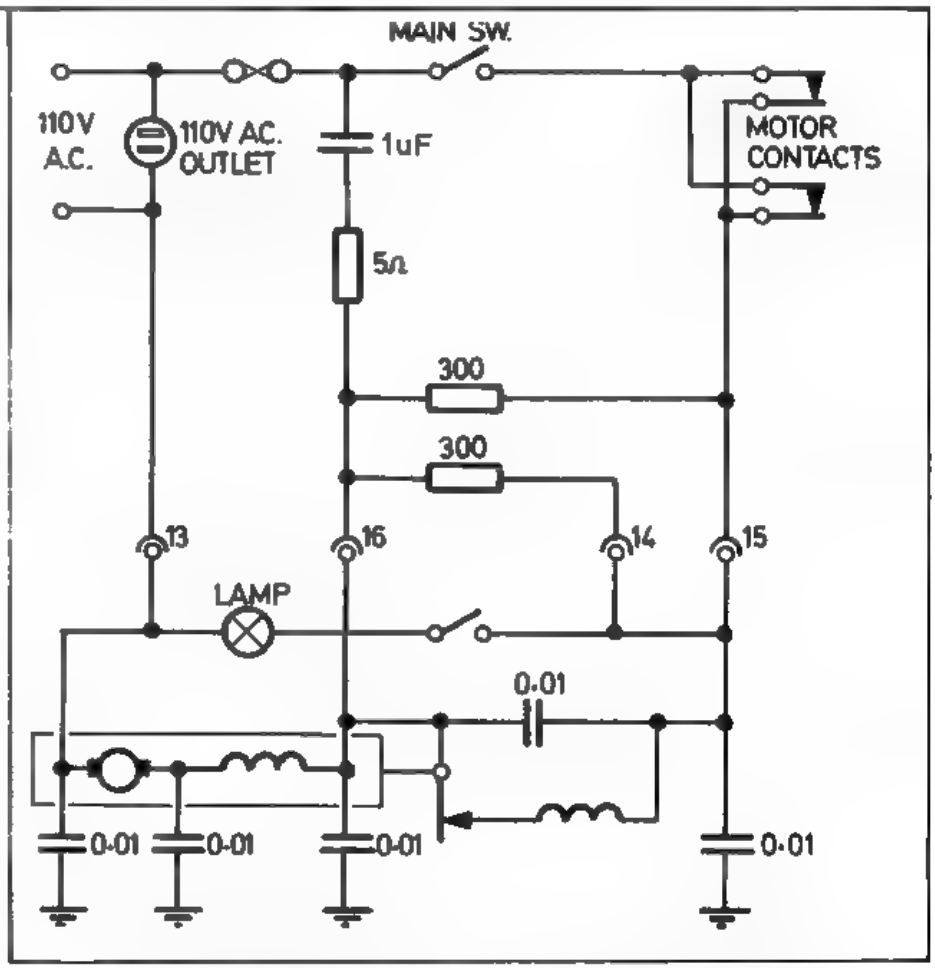


FIG. 1: Original Circuit Diagram of Teletype 15 Motor System

The source of most noise is the governor contacts which are breaking the voltage to the motor. This causes a spark and if we can remove this spark then we remove the noise. If we replace the contacts with an SCR and use the governor contacts to gate the SCR using a low voltage then we eliminate the sparks!

The type of SCR is not important providing that it is of adequate ratings which are at least 125 volts at 1 amp. I used a C106B1 and it is around this type of SCR the article is written. The gate resistor may need to be experimented with to get another type SCR to fire reliably.

It is necessary to remove the base bottom cover to gain access to the wiring and resistors leading to the motor. This can be awkward due to the weight of the Model 15 so remove the typing unit by unscrewing the 3 or 4 large flat headed screws on either side of the machine. This will allow you to turn the base upside down and remove the bottom cover.

In the middle of the base are two large resistors with 5 wires connected to them.

One of the wires going to the left side of the resistors goes to the middle motor contacts. Find this wire and remove it from the resistors and insulate it. Of the wires going to the right-hand side, one goes to the resistor/capacitor mounted on the rear deck next to the rear tagstrip. Locate this wire and also remove it from the resistors and insulate it. Those two wires were each one of a pair of wires connected to the large resistors so remove the other wires of the two pairs and join together. This should now leave only one wire connected to the resistors.

Now we have to connect the SCR. Locate the wire going to the extreme left-hand motor contact and unsolder it. To this motor contact solder the anode of the SCR and to the cathode of the SCR, solder the wire you just removed. The two large resistors are joined at one end and we are going to use them in series with a 20k resistor and a diode. The cathode of the diode is soldered to the gate of the SCR and the anode is soldered to the 20k resistor which then goes to the large resistors. Also add a 0.47 UF 250 volt capacitor from the gate to the cathode of the SCR to filter the gate line to prevent false firing.

The capacitors across the governor contacts will cause the SCR to fire continuously so disconnect them and also disconnect the light for the same reason! Make certain that the base of the Model 15 is earthed as this can also cause random firing and erratic motor control.

Well, that's the whole modification. It also works on Creed 7B, too, and stops most of the noise on that machine, too. It has worked for some time on both my machines with no trouble but, as already stated, the 20k resistor may need to be selected experimentally to get reliable firing of the SCR under load.

The clatter of the machine you will just have to live with!!! ■

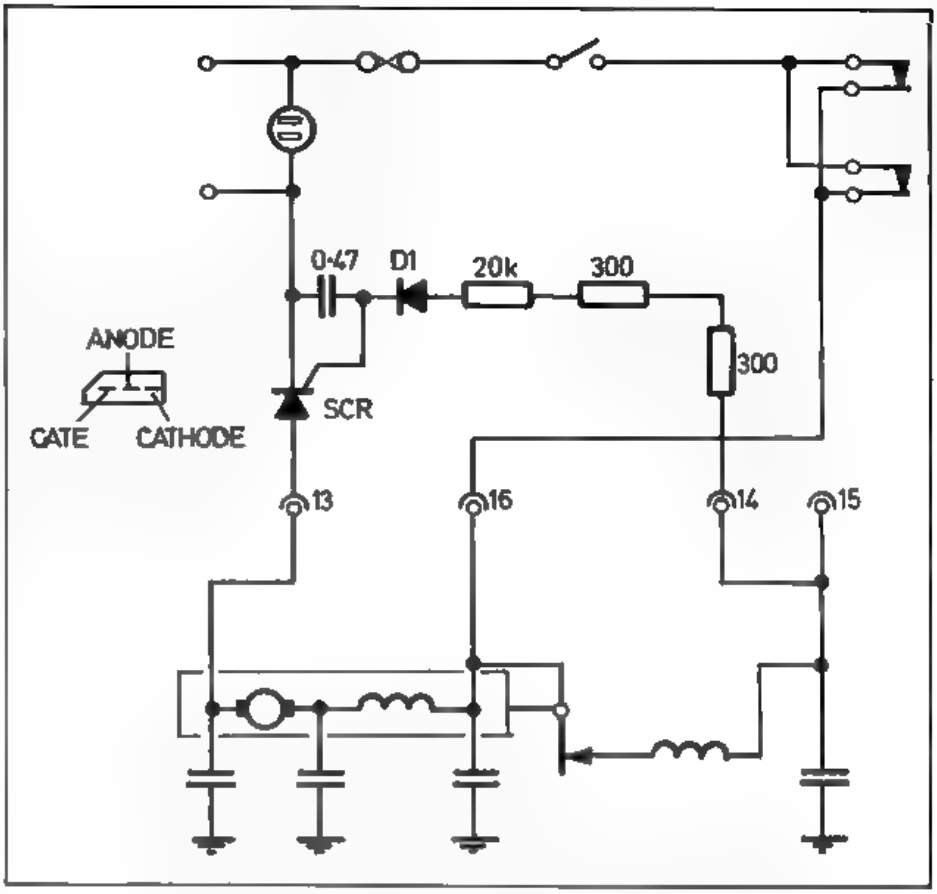


FIG. 2: Modified Circuit Diagram of Teletype 15 Motor System

TRY THIS

WITH THE TECHNICAL EDITOR

This circuit will interest those who have built up the "ST" series of RTTY terminals and others using the Mainline Floating Loop System. It permits use of a switch-controlled AFSKO as opposed to the "normal" voltage control, and provides hard copy of what is being sent.

It also has the advantage that the MARK/SPACE contacts in the keyboard switch are 10 volts at 5 mA, instead of 175 volts inductive at 60 mA.

This greatly increases contact life.

Keith Ayton VK3YHC. ■

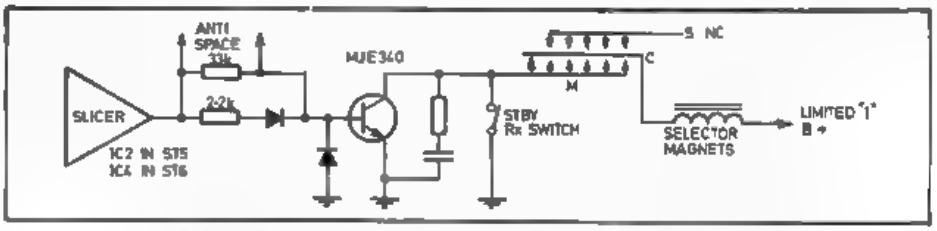


FIG. 1: Original Circuit Diagram of Teletype Motor System

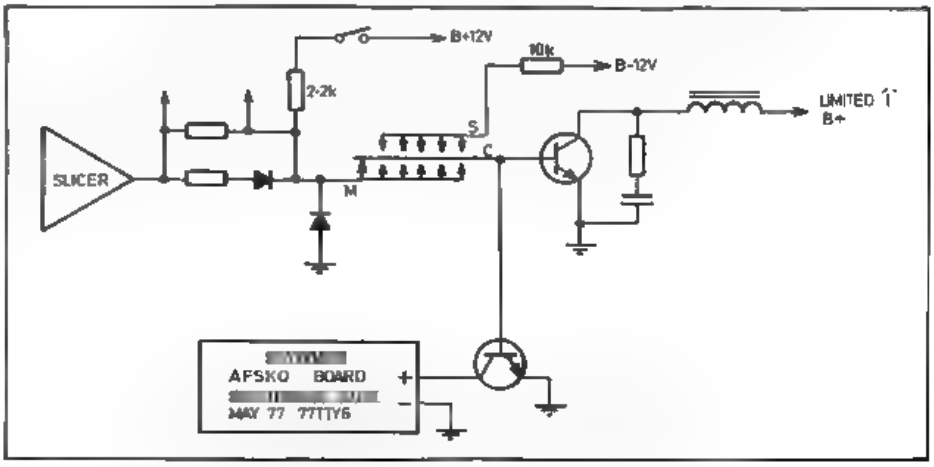


FIG. 2: Modified Circuit Diagram of Teletype Motor System

Are you checking our bands for

INTRUDERS

AND REPORTING SAME TO THE INTRUDER WATCH CO-ORDINATOR?

ROYAL NAVAL AMATEUR RADIO SOCIETY

Don Walmsley G3HZL
153 Worple Road, Isleworth, Middx., TW7HT

SHORT HISTORY AND DETAILS OF OUR INVOLVEMENT WITH THE MUSEUM SHIP HMS BELFAST

HMS Belfast by Tower Bridge, London.

The Royal Naval Amateur Radio Society (RNAS) was formed in 1960, mainly along the lines of the other service amateur radio societies but to attract the naval amateurs. The senior service was a little late on the scene, although the Navy had had many radio amateurs in its ranks, both before World War Two and after; all it needed was the driving force.

That was supplied by the few that gathered at HMS Mercury, the RN Signal School in August 1960, prime movers being George Tagg G8IX, Mike Matthews G3JFF, John Pegler G3ENI, G3LIK, G3DOT, etc. Yours truly was not there, being unfit at the time, but on the Society's inauguration in October 1960, I became number 12 on the books. There were only 58 of us in those days but with lots of hard work and many outside activities designed to attract members, we have grown until we have a strength around the 700 mark. Amongst our founder members was one Australian VK3CDR, then Surgeon Captain, now Rear Admiral Jim Lloyd, reasonably well known, I believe' to the members of WIA.

The RNARS has been involved with many outside activities, in the early years mainly from the RSGB Amateur Radio Exhibitions held in London. These were always supported until lack of serving members and stringent cutback in public funds caused us to abandon them for the time being one day we hope the climate improves and once again permits us to appear at these events. We also support Portsmouth Navy Days in August, run a mobile rally in June from HMS Mercury, support Jamboree on the Air from HMS Mercury and since 1973 we have operated a station on board HMS Belfast, the preserved cruiser, moored in the River Thames, between London bridge and Tower bridge GB3RN is the call we try to use from all these locations and except for 1977 we have succeeded — our licensing authority suspended the use of GB calls throughout 1977.

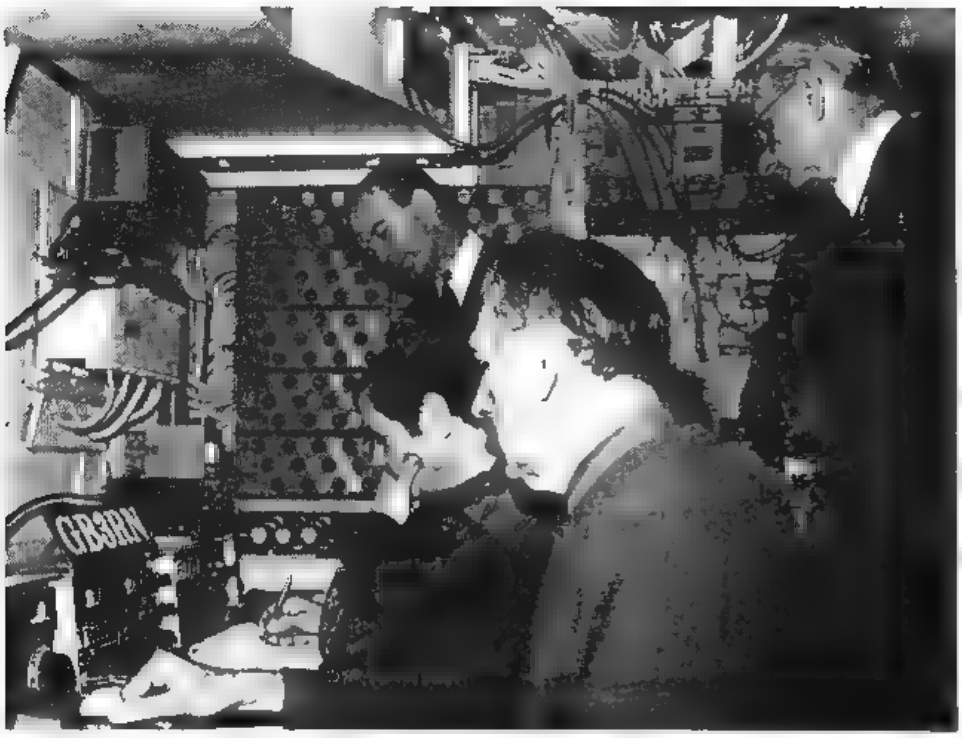
The first involvement with HMS Belfast began in 1973, when it was decided to do something special for the RSGB's Diamond Jubilee We applied to the Trust that looks after the ship for permission to set up and operate an amateur radio station aboard the ship. This was granted, and in the first week of September we descended on the ship and established a station on the Admiral's bridge This was very much enjoyed by us and provided good publicity, so it was decided to repeat it again in 1974, the date was moved to August so that it would coincide with school holidays, but when we aproached the ship's authorities, they said that we could no longer use the Admiral's bridge. Alternative accommodation for the station was suggested, we were shown a dark, dusty room on the same deck and this suited our purpose even better; they had shown us to the old bridge wireless office, much more roomy and a thousand times more suitable. Another very successful week's operation took place and before we packed up, it was decided to call a meeting of the London membership to see if we could restore the office to something resembling its condition at the ship's last refit in 1956. Work started on this chore in the winter of that year, much scrounging taking place to acquire equipment, painting, cleaning, rewiring and installing, being brought to a reasonable state by 1976. Our committee decided that the activity period should be moved to Easter of 1975, because we were trying to do too much during the summer months and this is now the fixed date, from Good Friday for ten days each year.

During the 1976 Easter activity, the BWO was officially opened to the public by Captain Derek O'Reilly, Captain of Signal School and, although we cannot provide a full time staff, the display has been there for the public to view. The London group were issued with the call G4EOK in November 1975 and we are active with this on most week-ends of the year.

Many overseas amateurs visit the ship during their stay in the UK, and Mavis VK3KS and Ivor VK3XB have been entertained aboard.

The small group of London members are still working on restoration jobs, mainly consisting of rewiring and finding ways to route the various antennas into the shack, existing 90 ohm naval coax not being suitable for our purposes and except for the trap dipole which still enters via a voice pipe, all antennas now enter the BWO via the original feed points. Some of the old naval whips are used for reception, and the VHF antennas are an excellent match on 144 and 432 We have installed a 270 ft end fed which works extremely well on 1.8 MHz (still looking for a VK or ZL to complete WAC on that band) Main transmissions take place on the trap dipole and a 12AVQ has been donated to us and it is hoped that this will be installed soon This antenna should improve our ten metre performance

Activity took place at Easter 1977 but we had to use G4EOK, G3HZL and G3XRN to cover our three operating positions, a bit disappointing not having GB3RN and



Main HF operating position of GB3RN. (Photo courtesy Petty Officer P. J. Walker — Defence Press Office).

rather a struggle to make contacts, but, hooray, in late 1977 the Home Office announced that GB calls would be available this year, so application put in early and there we were at Easter using the lovely call Great Britain 3 Royal Navy again.

The preparations for the event start in the middle of December when the first publicity letters start to be written, then down to the ones asking for volunteers and loan of gear, etc. Response this year was reasonable. On the 23rd the first volunteers start to come aboard, usually serving members who are going to stay aboard for the full ten day stint. No official accommodation aboard, but there are ten bunks that we can use in one of the old Petty Officers' messes and full use are made of these during our activity. First signals were radiated exactly at midnight local time and the DX was soon rolling in and it continued to do so throughout the week, except for Monday, when conditions were rather disturbed and we concentrated on 80 metres. Over 2000 contacts were made during the period in 103 different countries, amongst them being many VKs and ZLs, plus HC8, VP8 (Signy), PJ, HI, JW, VU, SU, HR, YN, C5ZC4, PY, JA, CN8, HP, KZ5, YV, KH6, VP9, 9L1, EL, LU, HK, ZS, ZS3, 4X4, EP, ST, YB7, HM, 8P6, VP2V, CO, CX, 5Z4, VS6, OX, HZ, J3, 9N1, KP4, 9G1, ZD7, FM, TI, VP2L, most of the countries in the USSR and plenty in Europe; no deliberate attempt was made to chase DX, we just let it come and find us. Most contacts were conducted on a chat basis, excepting for a short spell in which we handed out a few points in the CQ WPX SB contest. Many stations want to chat when they hear our location, so our apologies to those stations who got fed up waiting for us, and I guess that there were very many.

Our big day was on Friday, 31st March, when our President, Captain John Taint, RN, honoured us with a visit; the usual naval bull took place on Thursday evening (that's why we were not too active then) in readiness for the morrow. Other guests were expected, and the first to arrive was Lord George Wallace of Coslany, immediate past President of RSGB. Ten minutes after he showed up the Captain arrived, to be greeted by a motley side party. They were conducted up to BWO; I had to return to the quarterdeck to greet Dr. Fred Horner, Director of the Appleton Laboratories (G3RRS is the club at that establishment and many of the VP8s heard from the rare Antarctic islands come from there), and Dr. Dain Evans, President of RSGB. After an hour or so inspecting the station and chatting to our members, the guests plus a number of us adjourned to the ship's club bar (not on the public rounds) and had a few welcome wets. Many of the overseas amateurs who have met me on board have seen the inside of the club and they are usually made very welcome by the ship's staff. The visit of these distinguished persons went off very well and they all expressed themselves satisfied with what we had achieved in the BWO.

Sixty members participated directly in this year's activity, ranging from a 13-year-old sea cadet to Reg G3EGJ, who joined the Royal Navy in 1913. Serving members have to wear uniform during this activity, because it classes as an official duty, and we had from a Lt. RN and Lt. RM down to RO (Steve Wilkshire of the Ark Royal) taking an active part. Many members were also contacted, VP8PL on Signy, ZC4IO, Dusty VK3AYO, ZS1JJ, G3ZGC/MM, etc. All in all, a very successful and enjoyable ten days were spent aboard, some of us never seeing our homes between the 23rd March and the 2nd April. Although very enjoyable it is nice when it finishes and you can once again enjoy the comfort of your own bed, instead of sleeping in a naval bunk.

The activity should take place between the 13th and 22nd of April next, and we are hoping that conditions will be even better so allowing us to contact even more overseas stations.

Corporate membership of the RNARS is open to serving or past members of the RN, RM, WRNS, Reserves, Commonwealth Navies, RNXS, RFA service, Sea Cadet Corps or those connected with these services in a civilian capacity, or serving or past members of UK or Commonwealth Merchant Navies, yearly subscription is £2.00. Associate membership is open to serving or past members of foreign navies, including Merchant Marine or those connected with these services in a civilian capacity.

The Society also issues the Mercury award for working RNARS members; DX only needs 5 points, but the award will be endorsed for each extra 10 points gained, and there are band and mode endorsements, log data only, and £0.30 or its equivalent to G3HZL. The Hampshire County Award is also sponsored, the award is on a points basis — one point gained for each station contacted within the county boundaries, 2 points for G3BZU or any other sponsored RNARS special event station, as long as it is within Hampshire. This award is in three classes:

Class 1 — UK 50 points, EU 20 points, DX 15 points.

Class 2 — UK 30 points, EU 15 points, DX 10 points.

Class 3 — UK 20 points, EU 10 points, DX 5 points.

Log data to G2MG, cost as Mercury award. All contacts for both these awards must have taken place after the 1st October, 1960.

A Morse proficiency certificate is also issued for 100 per cent copy at 15, 20, 25, 30, 35 and 40 w.p.m. The transmissions take place on the first Tuesday of each month from G3BZU at 2000 local on 3515 (plus or minus QRM), trifle difficult for our Antipodean friends, but it is believed that our large group in ZL are planning something similar, negative late news on this one.

All enquiries regarding the Society to the Secretary, HQ Station, G3BZU, HMS Mercury, East Meon, Petersfield, Hampshire, GU32 1HE, or to the author, G3HZL, 153 Worple Road, Isleworth, Middlesex, TW7 7HT. ■

WOOMERA'S CONTRIBUTION TO THE 21st JAMBOREE-ON-THE-AIR

Derived from a report in the 'Gibber-Gabber', Woomera 25.10.78

Submitted by Dick Ashton VK5DR

Woomera's participation in the 21st Scout and Guide Jamboree-on-the-air during October '78 was a highly successful event.

Although the number of contacts was not many, quality rather than quantity is the aim of this international activity.

Altogther nine Brownies, 12 Guides, nine Cubs and 11 Scouts, and a number of leaders and others spoke from 10.50 a.m. on Saturday to 6.30 p.m. on Sunday to 21 of many special jamboree amateur radio stations, with only a few hours off during a period when the bands went dead.

Many stations were heard, using young Scouters with CB experience as assistant operators, and their performance was of high standard.

In Woomera, the 40, 20 and 15-metre amateur bands were used, with a "listening watch" kept on 80 and 10 metres to see if contacts there were available.

The station used was that of Richard Ashton VK5DQ who for the past three years was the SA Scout HQ Commissioner for Radio and who briefly acted as Woomera Scout Leader earlier this year.

TXCR LOANED

A standby transceiver was loaned by the Woomera Amateur Radio Club in case of station equipment failure; fortunately this did not happen, but it was useful in a contact with a New Zealand station in which Woomera had to transmit on one frequency and receive on another due to so many other stations being on air.

The station was "open for business" for 22½ hours, of which about 13½ hours were spent talking to contacts at home and abroad, and the rest in looking for and waiting for stations the youngsters could understand.

Altogether three stations were contacted in New Zealand, Tasmania, Victoria, Australian Capital Territory, South Australia, Western Australia and Queensland contacts totalled 17, and also one at Umtali (Rhodesia) where the Scouts had originally intended to camp on the golf course but this was cancelled, owing to their vulnerability to terrorist attack.

Many Japanese and American stations were heard but as most were only wanting to swap contact cards and were not Jamboree stations, time was not wasted trying to contact them.

RHODESIA

A Rhodesian station was contacted after waiting half an hour while six other stations talked on non Jamboree business and when contact was finally made, band conditions deteriorated and forced a break off after only five minutes.

Interest was such that of the 41 young people who attended, a number came back as often as four times, making the actual attendance 64!

Some had taken part previously in regular Sunday morning contacts with two other Adelaide Scout radio stations, at Para Vista and Tea Tree Gully, and this activity will be continuing in preparation for next year's Jamboree-on-the-Air. ■

L. to r.: Angela Marlow, Jeffrey Delgado, Leslie Evans, Dick Ashton VK5DR, Boyd Roberts.

NOVICE NOTES

ADJUSTABLE TUNING OF "SKYBAND" 80 METRE WHIPS

Gordon J A Cassidy VK2NWC

The 80 metre helically-wound "Skyband" whips, 6 ft long, available commercially in Sydney (VK2ZXL), have a bandwidth of about 50 kHz between points with SWR of 2

It is possible to change the resonant frequency by loading the whip externally with a short piece of copper or aluminium tubing slipped over the upper part. The rough measurements I have carried out show that the resonant frequency can be set anywhere in the novice part of the band without noticeable change in the bandwidth or minimum SWR, by adjusting the distance of the loading sleeve down from the top of the whip No measurements were made of the extra losses introduced, but these are not expected to be high

In these tests, a piece of ⅝ inch copper light-gauge water supply tubing about 3 inches long was slipped over the top of the whip and held in position with a piece of 2 mm nylex sleeving looped through it

Measurements were made at intervals of 20 kHz over the novice band for several positions of the sleeve, and the SWR and reflection coefficient plotted If the top of the sleeve is about 5 inches down from the top of the whip, the resonant frequency is unchanged while moving it further down increases the frequency, a movement of about 15 inches being needed to move from one end of the novice band sector to the other The minimum SWR was less than 1 1 in all positions

It should be possible to construct a remotely tuneable version by mounting nylon pulleys at the top and bottom of the whip and moving the sleeve with nylon fishing line. ■

RIP — LETHAL SEQUEL

I dreamed death came the other night
And Heaven's gate swung wide
With kindly grace an angel came
And ushered me inside
And there to my astonishment
Stood folks I'd known on earth
Some I had judged until
And of very little worth
And pridgnant words rose on my lips
But never were set free
For every face showed a stunned surprise
No one expected me!

Credit ARNS Bulletin July 1978

CORROSIVE CRUNCH

Photos 1 and 2 show Kevin VK2BKG's TA33 senior beam which was supported 70 ft. above the ground on a self supporting tower, which found its way to the ground one windy night

Take special note of the mounting plate which corroded away, the plate was aluminium and the bolts were stainless steel The tower stayed in place, only the beam came down. ■

PHOTO No. 1

PHOTO No. 2

QSP

CHURCHILL FELLOWSHIPS

The Winston Churchill Memorial Trust will be calling for applications for Churchill Fellowships tenable in 1980 The closing date is 28-2-79 There are no prescribed qualifications for the award of a Fellowship, merit is the primary test, whether based on past achievement or demonstrated ability for future achievement The value of an applicant's work to the community and the extent to which it will be enhanced by the applicant's overseas study project are important criteria in selecting Fellows. Fellows are awarded a return economy class overseas air ticket and an overseas living allowance to enable them to undertake their approved overseas study project Fifty-nine Churchill Fellowships were awarded for 1979 at a total cost of $300,000 The Trust was established in 1965 from the capital sum subscribed by the Australian community in memory of Sir Winston Churchill Funds now stand at $5 7m. Australians over 18 years of age, from any walk of life who wish to be considered for a 1980 Churchill Fellowship should write for a copy of the brochure and application forms to the Winston Churchill Memorial Trust PO Box 478 Canberra City, ACT 2601

NEW PREFIX 1979

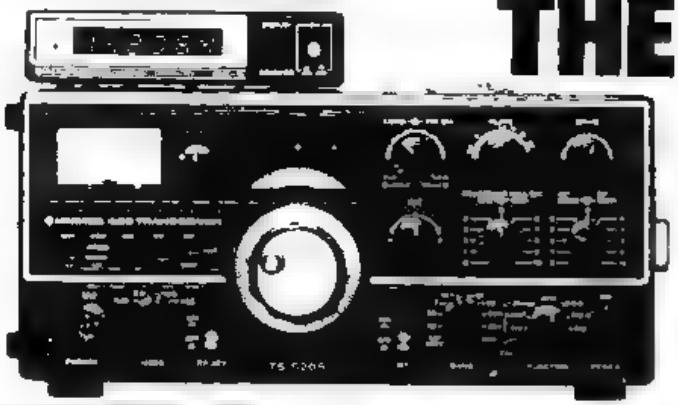
To mark the celebrations of the 1 000th year of Tynwald the Isle of Man Parliament the prefix GT may be used by amateur operators on the Island from 30th June to 8th July 1979 Other GX prefix changes are, of course GU for Guernsey and GJ for Jersey in the Channel Islands in place of the GC prefix

REPEATER CHANNEL SPACING

Despite considerable discussion quotes Radio Communication of September 1978, the VHF Committee of the RSGB in relation to 2m repeaters said it was agreed not to introduce 25 kHz spacing on repeaters yet but builders of repeaters are being advised to use equipment capable of being converted to this standard in the future ■

APPOINTED KENWOOD DEALER

THE NEW TS 520S



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		YAESU FC-301 Tuner	$225

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Export inquiries welcomed

Filter Type	XF-9A	XF-9B	XF-9C	XF-9D	XF-9E	XF-9M	XF-9NB
Application	SSB Transmit	SSB Receive	AM	AM	FM	CW RTTY	CW RTTY
Number of Filter Crystals	5	8	8	8	8	4	8
Bandwidth (6 dB down)	2.5 kHz	2.4 kHz	3.75 kHz	5.0 kHz	12.0 kHz	0.5 kHz	0.5 kHz
Passband Ripple	< 1 dB	< 2 dB	< 2 dB	< 2 dB	< 2 dB	< 1 dB	< 0.5 dB
Insertion Loss	< 3 dB	< 3.5 dB	< 3.5 dB	< 3.5 dB	< 3.0 dB	< 5 dB	< 6.5 dB
Input-Output Z_t	500 Ω	500 Ω	500 Ω	500 Ω	1200 Ω	500Ω	500 Ω
Termination C_t	30 pF	30 pF	30 pF	30 pF	30 pF	30 pF	30 pF
Shape Factor	(6.50 dB) 1.7 (6.80 dB) 2.2	(6.60 dB) 1.8 (6.80 dB) 2.2	(6.60 dB) 1.8 (6.80 dB) 2.2	(6.60 dB) 1.8 (6.80 dB) 2.2	(6.60 dB) 1.8 (6.80 dB) 2.3	(6.40 dB) 2.5 (6.60 dB) 4.4	(6.60 dB) 2.2 (6.80 dB) 4.0
Ultimate Attenuation	> 45 dB	> 100 dB	> 100 dB	> 100 dB	> 90 dB	> 90 dB	> 90 dB
Price	**$40.65**	**$55.10**	**$59.30**	**$59.30**	**$59.30**	**$41.50**	**$73.45**

Registration Fee **$3.00** Air Mail 31c per ½ oz Shipping weights Filters 2 oz ea Crystals ½ oz ea All Prices in U.S. Dollars

Matching Oscillator Crystals

XF900 Carrier	9000.0 kHz	$4.75
XF901 USB	8998.5 kHz	$4.75
XF902 LSB	9001.5 kHz	$4.75
XF903 BFO	8999.0 kHz	$4.75
F-06 Crystal Socket (HC25/u)		50

Oscillator Crystals 50 kHz through 150 MHz available to order. Parallel modes 10 pF to 20 MHz series resonant above 20 MHz. Write for quotation to your requirements on plate mechanical size & frequency.

Matching FM Crystals Discriminators for XF-9E

	Freq Dev	Slope	Price
XD-9-01	± 5 kHz	± 40 mV kHz	$27.80
XD-9-02	10 kHz	24 mV kHz	$27.80
XD-9-03	12 kHz	± 50 mV kHz	$27.80

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AMATEUR RADIO WEEK-END

The WIA Education Service, incorporating the Youth Radio Service, concluded another successful amateur radio week-end of fun and learning

PHOTO No. 1

At the mike we have Rex Black VK2YA, founder of the YRCS in Australia, receiving a 160 metre call back. Next to Rex we have Br. Cyril Quinlan, the Co-ordinator of the amateur week-end concept, and next to him (holding the switch for the 1.8 MHz linear) is Mathew VK2NAI

PHOTO No. 2

Stevene Rowlison at the controls of a mini-computer — one of the new popular additions to the amateur week-end activities.

PHOTO No. 3

Steve Rowlison's father having a nice time trying the do it yourself electronics training kit

PHOTO No. 4

From right to left we have Bruce VK2NUT, Christ VK2NYA, Mathew VK2NAI, and Paul VK2NYO (holding the mike) manning the HF 160 to 10 metre station

The cost for all accommodation and food at the Katoomba happening is $20 (or $12 if you are ten years old or younger). If you would like to get into the next week-end (beginners, students and licence holders are all we come), please contact—

Ken Jame VK2NWK, (02) 638 1687
Cel Wyn Carlyle VK2NOK, (02) 827 3589
Les Dickenson VK2NMY/YMY, (02) 47 3044, for further details

FIELD TRIP TO HILLEND NEAR BATHURST, N.S.W.

The Amateur and Citizens Radio Club of NSW is organising an Amateur and CB radio week-end at Hillend near Bathurst, on the week-end of the 17th February

Any amateurs who would like to participate in demonstrating and discussing the ins and outs of the fun of amateur activities would be most welcome to attend

A private bus is being hired to transport those leaving from Sydney if you require transport for you and your gear. The bus will be set up for all bands so we will be able to work the world while "bus mobile"

All are welcome to attend and newcomers are especially welcome to come along. For details and reservations contact Max Lowe, 30 Frances Road, Putney, NSW 2122, or phone 807 6172, or call in on the club net on the first Saturday of each month on 3580 kHz plus/minus QRM or any Sunday at 8.30 p.m. on 28.5 MHz ■

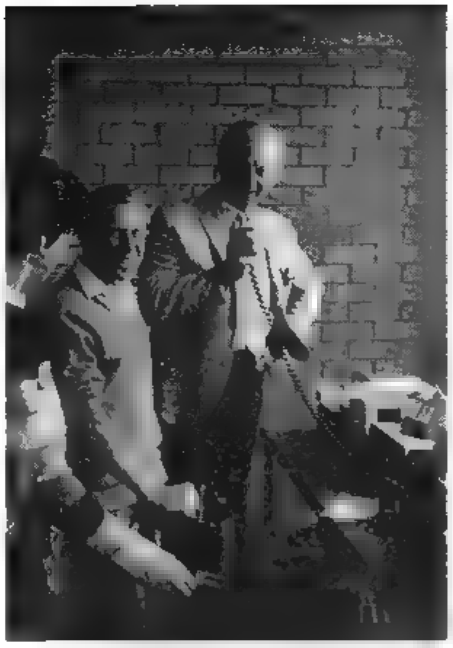


PHOTO No. 1

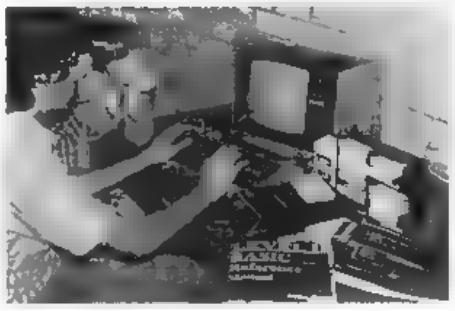


PHOTO No. 2

PHOTO No. 3

PHOTO No. 4

NOVICE NOTES

SOLID STATE RIGS

Whether you grieve for tube finals or not, Solid State finals are here to stay and will increase in the years ahead. The problems of making efficient transfer of the RF energy to antenna systems are more acute with solid state than with tube finals with their loading controls. Mobile operation in particular is demanding and ensuring a perfect match to the base of the antenna is imperative. Some of the problems you can have occur are. (1) High VSWR of around 3 : 1 will reduce useful power output. (2) RF voltages resulting from VSWR appear on the chassis and microphone and sets exhibit symptoms of RF feedback. Remember that broadband solid state finals have no loading controls to approximate optimum impedance of 50 ohms. Therefore we suggest that you take particular care in matching your feedline to the antenna. Mobile antennae have base impedances lower than 50 ohms and it is suggested that the impedance be checked with a bridge and resulting discrepancies be corrected with a base matching unit. Transceivers used in the shack should use a tuning unit if only to reduce tendencies for TVI. Beams, etc., may have a feed line impedance of 50 ohms, but don't depend on it as variations in assembly and proximity to nearby objects may modify this.

POWER METERS AND HARMONICS

10 watts on your power meter may not be "watt" it seems! If you have harmonic output, the harmonics may combine with the fundamental to produce erroneous readings on some power meters. Fortunately most rigs have low harmonic output and the reading is accurate but watch out for this pitfall.

From VICOM Ham News ■

THE KILLARNEY HEIGHTS NOVICE RADIO CLUB

160 METRE LOGGINGS FOR 1978

Equipment. A Forest phone FP-1, 160 metre transceiver crystal locked on 1 825, 10 watts, AM, AWA make, fully transistorised, a McLeod ME58/11A, 160 metre transceiver crystal locked on 1 825, transmitting, variable on receive, 18 00 to 18 60 valve Antenna A 160 metre dipole, 125 feet

VK1 VK1RK
VK2 VK2HO BIC BVS BGH, GE QBZK, LS, ACC, BAV, AAB, BDT BWS, BRU BSB, BJL, LH, OO BFR WC, OI APQ, PA, BOJ ARN BGV BPX, BYO BZJ, BKX, DI
VK3 VK3ALS IM BEX AOS ACA AAB AEI, DW, BIE, BI AXE, DQ LO, EV
VK4 VK4DJ RL MR MD AFH ZQ AAL, AHO, RH AJM

VK5 — VK5KL, ALB, NN, XI, MG, AS, EJ.
VK6 — VK6TQ, 6AF, 6AS.
VK7 — VK7LZ, AE.
ZL — ZL4AY, 2LA, 2AGY, 1AVA, 2BLR, 2HE, 2AA, 2BC.
VR — VR4DX

Who said that 160 metres was not active? When was the last time you called on 1.825? ■

R. C. Black VK2YA
N.S.W. Education Officer

TRIAL NOVICE EXAMINATION — OCTOBER 1978

INTRODUCTION

Following the custom started in 1975, Trial Novice Examinations were conducted on and about 28th October to suit the situations in various participating Clubs and courses. These tests provided the "last chance" for instructors and students to ascertain the strengths and weaknesses of Radio Theory and Regulations knowledge and Morse Code skills prior to the official Novice examinations of the Post and Telecommunications Department, held on 21st November.

With immediate marking of candidates' Trial papers, there was time for instructors to revise and drill the weak points revealed by the Trial Novice "probings".

Letters were sent to as many NSW Radio Clubs as possible, inviting them to participate in the Trial Novice operation. Response was disappointing. However Examination Centres were organised at Perth, Adelaide, Darwin, Parkes, Canberra, Gosford, Lismore, Inverell, Cambridge Park, Springwood, Buxton, Lithgow, Killarney Heights, Liverpool, Newcastle Technical College, Wagga, Westlakes, Pennant Hills, Noosa, Cranbourne.

ORGANISATION

Wherever possible Clubs were asked to nominate Independent Examination Supervisors who received the examination papers and kept them in safe custody until the times for examination sessions.

Morse Code Receiving tests were put on to cassettes and distributed to Supervisors, who were required to secure the services of competent amateur operators to mark the tests and to administer Morse Sending examinations.

Candidates were able to take their question papers away from the Centres for discussion of their efforts with instructors and fellow candidates. In short, the papers became "Revision Syllabuses" in the three weeks between Trial and P/T examinations.

Examination results were returned to the Education Officer to permit the assessments and statistical information.

EXAMINER'S COMMENTS

CW Receiving

70 per cent of candidates passed in BOTH Receiving and Sending at 5 w.p.m. and reports indicate that a goodly number have used the Education Service's "Learning Morse Code" Course and the Practice Cassette system

CW Sending

23 per cent of candidates failed or did not attempt the Sending Test.

Regulations

80 per cent of candidates passed in this subject, which was set on the P/T format of 30 multiple-choice questions. One private study candidate from Lithgow gained possible marks; the lowest mark was 4 out of 30.

Theory

The Departmental November Novice Examination in Theory would be the FIRST set to the newly-introduced P/T Novice Syllabus and to the WIA Novice Study Guide. Therefore, no previous P/T papers would offer adequate guidelines as to what our candidates might expect on 21st November. We had no means of knowing where the Departmental examiners might distribute their "probings" and what might be their "pet" topics. What emphasis they might place on certain aspects of the new Syllabus and the depth of knowledge they might require. It was considered necessary — or even urgent — to test the new Syllabus as widely as possible — even if it became necessary to change the timing and the format.

A disturbing trend was noticed with respect to the P/T Novice Examination last May. Some Novice students, having completed less than HALF of their Course, were able to attempt the P/T testing and to gain 70 per cent of possible marks on elementary topics and some reasonably intelligent guessing of the multi-choice questions. Keeping in mind that a Novice licence is, in fact, a TRANSMITTING PERMIT, there can be no justification in framing theory papers which make it possible for candidates to pass without adequate training and testing in the "transmitting" areas of the Novice Syllabus. For this reason the Trial Theory paper was divided into three sections with the requirement that candidates must pass in all three sections. Furthermore, the section C was weighted to 50 per cent of the possible marks, emphasising the EXAM WORTHINESS of questions relating to transmission, propagation, aerials, transmitters, frequency measurement, TVI, BCI, harmonics in which areas Novice candidates should be well drilled, even if they are not taught and tested on "the composition of solder" and similar unessentials.

There was a wide range of marks in this Theory area. Top mark was 84 per cent, lowest mark was 8 per cent. Average mark was 53. The results gave a reasonable approximation to a "normal distribution graph". In short, candidates who had been well taught and had made an adequate effort did quite well. Those who were ill-prepared or "took it too cheaply" or "gave it a go just to please the instructor" did not achieve satisfactory levels.

NOVICE EXAM SYLLABUS

It seems that some instructors did not know of the existence of the new P/T Novice Syllabus and the WIA Novice Study Guide. Obviously, many candidates were similarly unaware of these guidelines.

After the first few batches of material came back from Examination Centres, I made up a PROGRESS ANALYSIS and distributed to Clubs and instructors to show the trends and weaknesses revealed. Some instructors made very good use of this information and "hammered" the weak topics — hopefully in time to meet the P/T Novice deadline. However, some candidates were so backward that it would have been impossible to "build them up" to satisfactory standard by 21st November.

Mr. Reg Stockman of Inverell has suggested that in the April Trial Novice there should be TWO Trial Theory papers set so that the first (a longer Diagnostic test covering the whole Syllabus) should be given about 4 or 5 weeks prior to the P/T Examination in May; the second should be JUST BEFORE the P/T Examination and should be in P/T format. Another suggestion is that Clubs should be allowed to choose whether to submit candidates for a simulated P/T Examination OR for a longer Diagnostic test which can then be used as a "final burst" Revision Syllabus.

However, I suggest that Club instructors would do well to follow the YRS Radio Certificate sequences, keeping in mind that Elementary (Stage 1) approximates to the "Basics" topic of the P/T Syllabus; Elementary (Stage 2) would take students through Receivers up to Superheterodyne Receivers. Also, the YRS Certificates in Radio Telephony and Wireless Telegraphy offer useful practical applications of much of the Theory topics.

An undue proportion of students failed in Sections A and B of the Theory paper. These related to topics that would have been covered in the early weeks of a Novice Course. One suspects that in some cases the Trial would have been the first time many students would have been tested during their training period.

It has been suggested that some candidates who "knew their Radio" were "thrown" by the use of question types that were other than multi-choice. I do not subscribe to this opinion. Assuming that instructors DID, in fact, conduct progress tests during the Course, it is improbable that ALL such tests were multi-choice. A candidate who MUST have four alternative answers presented to him and is incapable of deriving an answer by other means looks like a rather unpromising future member of the Amateur Service!

I point out, too, that mature students are masters of the art of deluding instructors into assuming that they (students) have grasped the complex principles of Radio Theory. An Instructor who accepts the nodding of heads as an indication of "grasping" is certainly deluding himself! ONLY complete and repetitive testing can assure him that his students have definitely understood and learned.

Some of the candidates' papers make one doubt whether they have ever seen an Amateur Radio Station; have even handled

a transmitter to tune and adjust it; have ever examined the "entrails" of a simple Superhet Receiver to locate the various stages. How many have ever used a Frequency Meter or a Wavemeter or seen a CRO display of over-modulation? In short, I think that many Novices are being let loose on the Amateur bands without adequate experience and background. How many have ever been "on the air" from an Amateur Station UNDER SUPERVISION? To achieve these desirable aims I suggest that Club members in general — those NOT undertaking the important, and unpopular, functions of instructing — might do well to contribute time and interest as members of Committees to provide the practical experience necessary to make GOOD CLUB NOVICES. In USSR, for example, there are Club Committees which provide such experience for candidates before the relevant Department issues transmitting licences. Our Australian Novices would benefit greatly from a similar set-up.

WHAT LESSONS HAVE WE LEARNED FROM THE TRIAL NOVICE EXAMINATIONS?

(A) That the whole Trial Novice exercise should be FLEXIBLE to meet the needs of Clubs and Courses, each of which has a different set of situations to determine its needs;

(B) Clubs and Courses should arrange Trial Novice examinations with sufficient time between Trials and P/T examinations to permit thorough revision of weak topics;

(C) Novice Courses should be based on COMPLETE coverage of the P/T Novice Syllabus and the WIA Novice Study Guide,

(D) Instructors should be encouraged to use the advantages of the YRS Radio Certificate system to offer step-by-step incentives to students,

(E) Clubs and Courses should be conducted with provision for students to gain equipment handling experience relevant to topics taught;

(F) Trial Theory Examinations should be available in:

(I) P/T format and

(II) other formats as may be considered more suitable for assessing candidates' knowledge of Syllabus topics;

(G) Trial Theory Examinations should be arranged on the "Three Sections" basis to obviate the chance of inadequately prepared candidates gaining pass marks;

(H) All Instructors and Students should be encouraged to have P/T Syllabi and WIA Novice Study Guides in their possession.

(I) Radio Clubs and Courses should undertake the function of awarding prizes to their successful Trial Novice candidates;

(J) Arrangements should be made for Trial Novice Examinations AT ANY TIME as requested by Radio Clubs;

(K) Trial Novice Theory papers should give special attention to the important topics of TVI, BCI, Interference in general and remedies;

(L) Instructors should conduct Morse Code instruction on the basis of NORMAL style, BUT sufficient practice should be given in the ITU mode to ensure that candidates at P/T Morse Tests will not be disconcerted by the different style of Morse used;

(M) The practice of awarding Intermediate and Junior Certificates on the present basis to Trial Novice candidates should be continued. ■

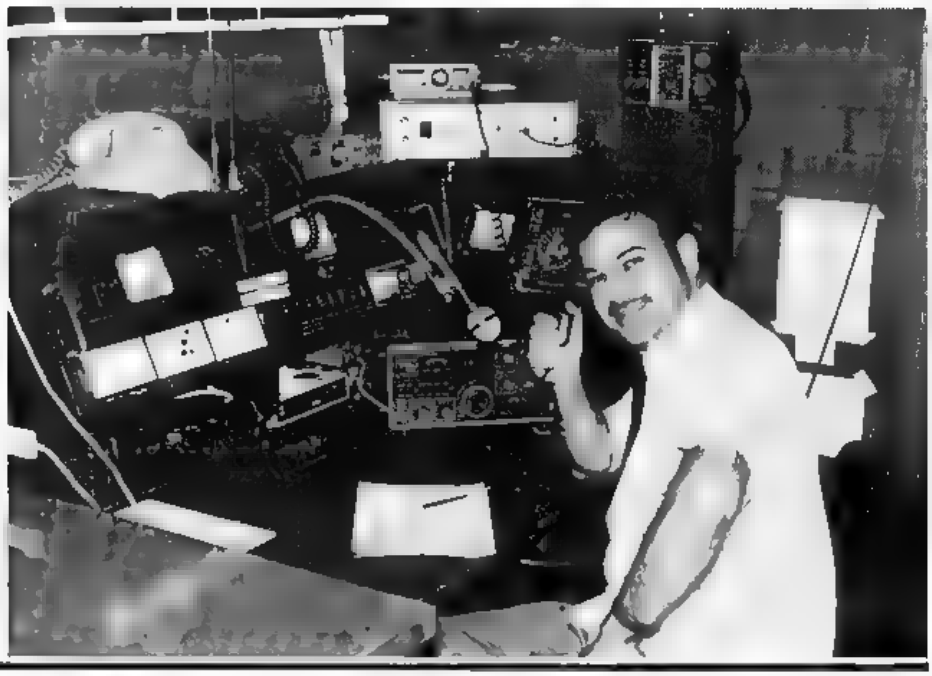
Geoff Swift VK2NCJ/YGE

"RADIO ROOM" OR "SHACK"

Here is a photo of my recently completed "Radio Room". I don't call it a "Shack" because I put too much work into it!! As can be seen the design idea was to have everything at fingertip control. It features, in console type arrangement, an AC line monitor meter, master switch, RF field strength meter, SWR and power meter, internal and external temperature meter, 24-hour world time clock, a phone patch board, 12 illuminated rocker switches, 6 x 240V power outlets, boom mic., digital clock, cassette recorder, mic pre-amp, VK Powermate, 2 x light dimmers and flashing LEDs for quick action in case of power or faults causing losses.

The main transmitters are a Uniden 2020 for HF and a Kyokuto 2 metre transceiver for VHF work.

To add a touch of luxury the "Radio Room is air-conditioned and fully carpeted. ■



GERALDTON AMATEUR RADIO GROUP

For many years Geraldton sported only two hams, Jack VK6EJ and Noel VK6MF. During the past year membership has increased to include seven full calls, three limited calls, and three novice calls, including a YL, Moira VK6NDM, and our State's youngest ham, Glenn VK6NGK, who is twelve years old.

We have a very active radio group, having established a Repeater from which pre-licensing tests have been most gratifying, with frequent contacts to Perth (400 km), Bunbury (500 km) and Cape Leeuwin (600 km).

We have organised two successful fox hunts and various social activities, enthusiastically supported by hams and their families — and this within twelve months.

Jack Cowles VK6EJ. ■

(see photos over page)

VK6MF attempts to locate the fox (in a fox hole?)

VK6QA Keith sporting a 20 Mx bow tie

THE AMATEUR RADIO CLUB OF TONGA (ARCOT)

Harry Feldman A35HF

Just two years ago there were no hams in Tonga. When Bill Lang came from New Zealand to work at the Tonga Copra Board he brought his hobby along with him. The Tonga Telephone and Telegraph Commission (T&T) issued him a courtesy licence and he went on the air as A35WL. Not one to be satisfied to enjoy ham radio alone, Bill soon gathered a small group of interested Tongans and palangis which began meeting weekly as ARCOT.

Bill Rickertson began giving a course in radio fundamentals which Don Greer A35DE, a Peace Corps Volunteer working as a technician at T & T, later took over. After a term, when it became apparent that the facilities at the University of the South Pacific's Nuku'alofa Center were inadequate, ARCOT found a new home at 'Atenisi University. Don's course continued to arouse a great deal of interest among 'Atenisi students and the community at large and drew about 25 students. After one term at 'Atenisi, four of the class's members passed T & T's 12 w.p.m. code test and the exam in electronics and radio law. Sione Mailei A35SM, 'Etuate Kavanga A35EK, Puoono Taufa'eteau A35PT and Harry Feldman A35HF were the first ever to be licensed in Tonga by examination.

More recently two other T & T employees, Viliami Vaka'uta and Sione Kava Aloua, got the licences A35VV and A35SK. After the second term of Don's course Sam Kolokihakaufisi got the licence A35SF.

Meanwhile, Don, Sione Mailei, 'Etuate, and Harry put together a shack in the back room of 'Atenisi's lab using an antique Eddystone model 750-x that T & T had lent us and a Knight T-60 that a friend in New Zealand donated. The Club station, A35FI, has been on the air since July and we have had many pleasant QSOs with our friends around the Pacific with the Eddystone, the T-60 and an inverted vee.

Early in 1978, Clark Richardson A35CR, became interested in forming a liaison between T & T and the amateur community that might result in some clarification of Tonga's 1934 Radio Law. At the same time, T & T was taken aback at the unprecedented rush for licences. They were concerned that improperly trained amateurs might interfere with other services. The series of meetings that Clark organized with Henry Malu, Acting Superintendent of T & T, culminated in Henry's approval of the Club. He was particularly interested in the potential of a group of self trained communicators for alternative communication in time of emergency. Dave Goddard A35DG was the first to communicate with the outside world during the destructive earthquake of June 1977.

In September and October of this year all the members met to approve our new constitution and to elect officers. Dave, as his last action as outgoing president, sent a copy of the constitution to the IARU as part of our application for membership. Our new president, Tavake Vi A35TV, is the very first Tongan ham. Don was elected vice-president, Viliami the secretary-treasurer, and Ric Berger A35RB, the property officer.

ARCOT has received recognition from Tonga's Legislative Assembly as the official representative of amateur radio in the Kingdom. The Crown Prince, Tupouto'a, has shown an interest in the Club and has agreed to open A35FI officially.

Our plans for the future include continuing classes next year and starting a branch of the Club on the Northern Island group of Vava'u, with the aim of organizing an emergency communication network. We are also hoping to get a USAID grant to install solar powered transceivers in the medical dispensaries in outlying villages to give them an opportunity to consult with the main clinic in Nuku'alofa.

We should be able to make great progress toward our objectives if we can only overcome one or two little problems. One of these is the 1200 miles of Pacific that lie between us and our neighbourhood Radio Shack. Thus far we've been relying mostly on parts cannibalized from old transistor radios. We'd like to express our gratitude to Ric Bergaer, N4TN, W7OZ, K6AGD, W4NBP, the North Shore ARC in New Zealand, the Flyweight DX Club, the Santa Clara County DX Club, and many others for their words of encouragement and offers of help.

N4TN is acting as QSL manager for A35s EK, FI, HF, PT, SF, SK, SM and VV. You can hear A35s EK, HF and SM operating A35FI between 7004 and 7017 kHz most days between 0800 and 1200Z. Other hams operating in Tonga are A35s CR, DE, HU, RB, TV and WL. ■

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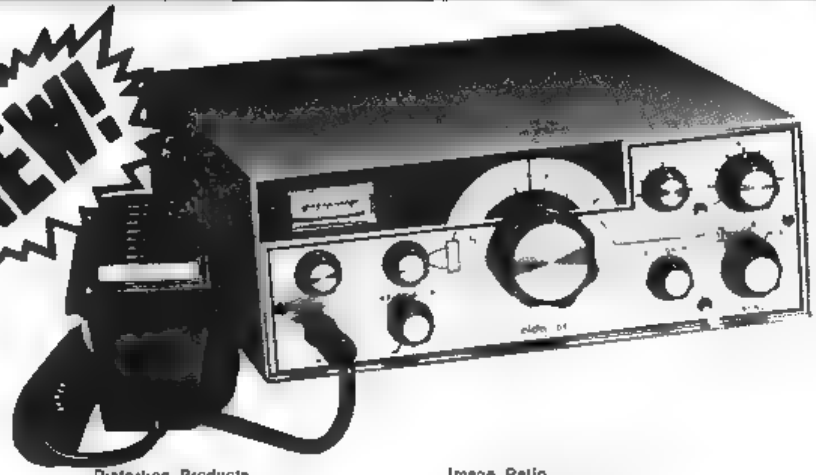

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Semiconductors:
39 diodes, 23 transistors, 11 integrated circuits

Power Requirements
Nominal 13.8V DC input at 15 amps, negative ground only

Power Consumption
Receive — 5.5 watts (includes dial and meter lamps), Transmit — 260 watts

Dimensions:
3¼ ' high x 9" wide x 12½ ' deep (82.55 mm x 228.6 mm x 317.5 mm)

Weight:
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PERFORMANCE SPECIFICATIONS:

Frequency Range:
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40 metre band — 7.0 to 7.5 MHz
20 metre band — 14.0 to 14.5 MHz

Modes:
CW, USB, LSB

RF Input Power:
SSB — 250 watts PEP nominal
CW — 250 watts DC maximum (adjustable)

Transmitter
Antenna Impedance
50 ohm, unbalanced

Carrier Suppression
Better than —45 dB

Side-Band Suppression
Better than —55 dB at 1000 Hz

Distortion Products
Better than —26 dB

AF Response
500 to 2500 Hz

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Harmonics better than —45 dB below 30 MHz, better than —60 dB above 30 MHz

Frequency Stability
Less than 100 Hz drift per hour (from a cold start at room temp.)

Microphone
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Receiver:
Sensitivity
Better than 0.5 watts audio output for 0.5 μV input

Signal-to-Noise Ratio
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Image Ratio
Better than —60 dB
(typical with respect to 0.5 μV input 80 metres - —130 dB 40 metres - —100 dB, 20 m - —75 dB).

IF Rejection
Better than —70 dB
(typical with respect to 0.5 μV input 80 metres - 110 dB 40 m - 80 dB, 20 m - 75 dB)

Intermodulation Intercept Point
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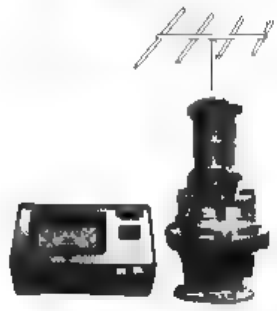

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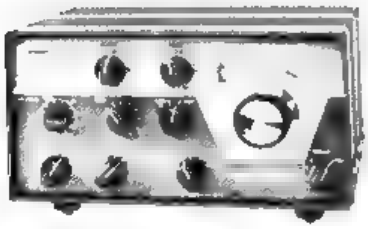

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THE WIA ROLE IN THE "SPECIAL PREPARATORY MEETING"

Michael J. Owen VK3KI

This report on the Special Preparatory Meeting (SPM) is of particular interest to Australian Amateurs. The paper submitted by Australia was based on the work of a number of Amateurs, in particular, Jack O'Shannassy VK3SP and Earl Russell VK3BER. Considerable support and assistance was afforded by officers of the Postal and Telecommunications Department. In addition, valuable suggestions and comments were afforded by a number of prominent overseas Amateurs. The Institute acknowledges their work with gratitude. The preparation of the paper was co-ordinated by Michael Owen VK3KI.

The WIA was asked to provide a Delegate with special responsibility for the Amateur Service on the Australian Delegation. David Wardlaw VK3ADW was a member of the Australian Delegation for the first two weeks of the SPM, and Michael Owen VK3KI for the remaining two weeks. The cost of their travel and accommodation was borne by the WIA.

In the second week of the SPM, the IARU held a reception for leaders of Delegations and members of Delegations who were also Amateurs. More than 150 Delegates attended this reception. Amongst these were many from Asia and Africa, including representatives of the People's Republic of China. This was the first occasion on which representatives of China attended an IARU function.

The recommendation of the SPM affecting the Amateur Service will provide an important basis for the Service's position at the WARC.

However, and very importantly, the significance of the SPM conclusions should be kept in perspective. The SPM was confined to a consideration of technical matters — it was not a frequency allocation conference. In addition to technical matters, the WARC will be concerned with far wider considerations, including economic, political and social issues. But on the other hand, the first and essential step, the acceptance of the technical basis for the Amateur position, has been taken.

The SPM was an essential step in the ultimate resolution of the WARC, but cannot be regarded as an end in itself. The conflicting claims of different Services for radio spectrum will only be decided at the WARC. The needs and requirements of different countries and different Services for frequency are diverse and conflicting. The Amateur Service must continue to press its case strongly, though in a balanced and sensible way.

The WIA, therefore, faces a heavy and continuing commitment over the next year, both financially and in the allocation of its resources.

The response of clubs, members, non-members and industry to the Institute's appeal for funds will determine how much more the Institute can do in fulfilling its fundamental responsibility to represent Australian Amateurs during this most important year. ■

SPECIAL PREPARATORY MEETING OF CCIR

Michael J. Owen VK3KI

Between the 23rd October and 17th November, 1978, the International Radio Consultative Committee (CCIR) held a Special Preparatory Meeting (SPM).

ITU Special Preparatory Meeting, First Plenary, CCIR 23.10.78 — WIA Federal President is seated with the Australian delegation working for WIA members and other Australian amateurs.

The task of the SPM, as defined by the Administrative Council of the International Telecommunications Union was to prepare a report based on texts approved by the XIVth Plenary Assembly of the CCIR, as well as on new contributions submitted to the SPM by Administrations and other participants. The report of the SPM was to be comprehensive and self-contained, and was to be presented in a form consistent with the various agenda items of the World Administrative Radio Conference 1979, and was to consist of technical information and conclusions considered by the SPM to be of importance to the work of the WARC. The report is being distributed as a document of the 1979 WARC and is not available to the public. It was not the task of the SPM to make specific proposals for revised or new allocations.

750 people (not including ITU representatives) participated in the Conference from 85 countries, 30 recognised operating agencies, 15 international organisations (including the International Amateur Radio Union), 10 scientific and industrial organisations, and three United Nations specialised agencies. Prior to the start of the SPM, some 400 documents were sent to the Delegates participating in the meeting.

Dr. J. A. Saxton of the United Kingdom was appointed Chairman of the SPM by the XIVth Plenary Assembly of the CCIR. The technical topics around which the work of the SPM was organised were as follows:—

A. Terminology and classification and designation of emissions. Chairman, Dr. M. Joachim (Czechoslovakia).

B. Terrestrial services up to 40 GHz, technical data for allocation and regulations. Chairman, Mr C. Terzani (Italy)

C. Space services and space/terrestrial sharing up to 40 GHz, technical data for allocation and regulations. Chairman, Mr. E. Craig (Australia)

D Monitoring and identification. Chairman, Mr. H. Kaji (Japan).

E. Services above 40 GHz, and optimum use of the spectrum. Chairman, Mr. H. Willenberg (Federal Republic of Germany)

F Propagation Chairman, Dr. F. Horner (United Kingdom)

G Resolutions and Recommendations related to CCIR work. Chairman, Mr. T. de Haas (United States)

H. Drafting Chairman, Mr. M. Thue (France)

368 new contributions were submitted by Administrations and four of these concerned new questions relating to the Amateur Service and the Amateur Satellite Service. Australia, Canada and the United States submitted new papers dealing with preferred bands for the Amateur Service and the United States also submitted a paper dealing with the Amateur Satellite Service.

The Australian contribution paid particular attention to the bands below 30 MHz. It was directed to investigating an optimum basis for the efficient allocation of spectrum to ensure the operational effectiveness of the Service. It examined the family of frequencies allocated to the Aeronautical Mobile (R) Service, the Broadcasting Service and the Maritime Mobile Service. It pointed out that the particular needs of these Services were met by the allocation of a suitable family of frequencies. It further pointed out that the allocation of harmonically related bands was formally recognised at the 1927 ITU Washington Conference. However, it argued that the need for harmonically related allocations no longer exist. It also argued that the wide spacing between successive bands had caused unacceptable crowding of these bands. Annexed to the Australian contribution was a computer study that illustrated the increase in communication capability over three particular paths if bands at 10, 18 and 24 MHz were allocated to the Amateur Service in addition to the existing allocations. The study took into account varying propagation and seasonal conditions. It illustrated that the provision of a new band at 10 MHz would provide a major improvement.

The Australian contribution also contended that sharing with radiolocation in the VHF and higher bands was feasible and would provide access to wider and more useful bands, though it was desirable to preserve some exclusive allocations for particular Amateur experimentation throughout the spectrum.

The contribution of Canada referred to the extent of use of Amateur bands and also illustrated the improvement in reliability in communication on three east-west paths by the addition of a new band at 10 MHz and argued, as did the US paper, for an enlargement of the family of frequencies available for the Amateur Service in HF bands.

The Amateur Service and the Amateur Satellite Service were considered in Committees B and C. Initially the Conference was divided into a large number of sub-working groups and working groups which reported to the main Committees. The documents circulated to Delegates before the SPM were considered and subject papers produced, which were eventually considered by a Plenary Meeting. Each paper went through a three-stage process before finally appearing as a "pink" document. These documents, as approved by the SPM, will constitute the report of the SPM.

The IARU participated in the SPM as a full delegation, and actively took part in discussions involving the Amateur Service. The IARU Delegation included Merle Glunt W3OKN, Roy Stevens G2BVN, and David Sumner K1ZZ.

David Wardlaw VK3ADW and Michael Owen VK3KI served on the Australian Delegation with special responsibilities for Amateur Radio matters. In addition, there were more than 50 Radio Amateurs who formed part of national Delegations.

What were the important conclusions of the SPM affecting the Amateur Service? In the context of allocations of frequencies up to 30 MHz, the SPM referred to the fact that frequency dependent factors determine the effectiveness of radio communications in the Amateur Service, and also pointed out that Amateur station operators continue to contribute to the knowledge of radio propagation phenomena, as well as the development and demonstration of spectrum conservation techniques throughout the radio frequency spectrum. The SPM concluded that frequencies in the MF band are useful to allow investigation into, and use of, propagation peculiar to this band, particularly during a sunspot minimum when the MUF is below 3 MHz. The SPM also concluded that the communication capability of the Amateur Service would be significantly enhanced by a better distribution of the frequencies available to it below 30 MHz. A suitable family of frequencies with narrower spacing between successive bands than is at present the case would have some technical advantage. The SPM also concluded, significantly, that it is not necessary to preserve a harmonic relationship between all of these bands. The SPM included in its report the computer study annexed to the Australian contribution, and the table annexed to the Canadian contribution.

The SPM also gave consideration to the allocation of frequencies above 30 MHz and in this part of its report the SPM referred to the definition of the Amateur Service in the Radio Regulations and also noted that "the number of Amateur stations, world-wide, is now more than 1,000,000 and is growing at an annual rate approaching 20 per cent". It suggested that above 30 MHz, frequency bands common to the three Regions are desirable. It also concluded that access to bands distributed throughout the spectrum is desirable to enable the Amateur to become experienced with those problems which are peculiar to different parts of the spectrum, such as the various modes of propagation, the problems of signal generation and detection, and antenna design. It again pointed out that Amateur bands no longer are required to be harmonically related. It also pointed out that it is desirable that bands allocated to the Amateur Service are sufficiently wide to permit experiments with wide band techniques. It also concluded that the Amateur Service could share frequency bands with the Radiolocation Service, permitting broader band operation than would be possible with narrower exclusive allocations. The report of the SPM further said "Such sharing would not require the Radiolocation Service to provide protection to the Amateur Service which would not be feasible, but even with this constraint, useful exploitation is possible by the Amateur Service.

Exclusive allocations, where possible, would help to meet particular needs of the Amateur Service." The SUM annexed a summary of the characteristics of the preferred bands above 30 MHz.

Whilst the SPM was able to reach a conclusion as to the feasibility of the Amateur Service sharing with Radiolocation in bands above 30 MHz, the SPM decided that there was no data on which to base a technical conclusion of the sharing possibilities between the Amateur and other Services below 30 MHz.

The one question that had previously been under consideration in CCIR affecting the Amateur Satellite Service was the question of the technical feasibility of frequency sharing by that Service. The SPM referred to the existing CCIR reports on this topic and concluded it is technically feasible to use existing world-wide Amateur Services frequencies in the earth-to-space direction in the Amateur Satellite Service under the same limitations that now exist for their terrestrial use in the Amateur Service. It also concluded that it would be technically permissible to utilize in the space-to-earth direction those frequencies which are allocated exclusively to the Amateur Service on a world-wide basis. The SPM further concluded: "Additionally, subject to the provision of 6362(1567A) of the Radio Regulations and also appropriate PFD limitations, it would appear to be feasible to use frequencies in the bands 1215-1300, 2300-2450, 5650-5670 and 10475-10500 MHz in the space-to-earth direction."

Two other references to the Amateur Service that will be contained in the report of the SPM are of interest and indicate a real awareness of the particular nature of the Amateur Service. In the context of the chapter dealing with questions involving propagation, the observation is made that "it is assumed that there is little interest in circuits which provide effective communication for small percentages of the time, except possible by the Amateur Service, in which the use of relatively poor circuits presents an interesting challenge". In the context of frequency tolerances, the SPM reported "no tolerance values have been established for meteorological aids, nor for the Amateur Service. This matter can best be handled by national Regulations."

Writing to the IARU Region 1 Division WARC 1979 No. 10 (December, 1978), Roy Stevens said "After the SPM had concluded, it is possible to say that the meeting assumed an importance greater than was originally envisaged. Many Delegates at the SPM will also be present at the WARC and decisions taken at the SPM will have a considerable influence on the work of the WARC." ■

TECHNICAL CORRESPONDENCE

31 Helms Court,
Benalla 3672
7/1/79

The Editor,

Dear Sir,

Congratulations on another annual December bumper issue of excellent quality. I refer now to my article on "TVI Filters — The High Pass Type", which appeared in that issue. Whilst I agree that your comments at the end of my article are correct in a general way, the anonymous authors' filters were also designed for the same impedance lines, namely 300 and 75 ohm, and if designed for Australian conditions should have also been designed to have no attenuation above 45 MHz.

One point that perhaps I did not make clear was that the selection of component values was done by building a number of prototypes around the nominal values obtained by calculation, to achieve maximum attenuation below 45 MHz with minimum attenuation above 45 MHz Some filters had excessive insertion loss and were disgarded as totally unsatisfactory. Some filters had good attenuation below 45 MHz but also had 3 to 5 dB of attenuation throughout the passband. The final filters which were described in the article had at worst 1 dB of attenuation over about 50 units made. It took many hours to obtain the optimum component values to give maximum attenuation, deepest notch and minimum insertion loss.

A large number of high pass filters are available on the market for about $2.50 and are usually made to the circuit in Fig. 1A of the December 1978 article. These filters have a wide production spread with various degrees of insertion loss and are designed with the American market in mind where the lowest TV channel in use commences from 54 MHz, therefore in most instances Channel 0 in Australia gets a bit of a pasting if signals are at all weak.

I mentioned that one popular colour TV set did not respond to the use of high pass filters in the aerial circuit in the article. The TV set concerned is a Pye using a particular tuner. The tuner is reputed to be a Taiwanese Oak tuner, other sets using either of the two alternative types of tuner appear to respond favourably to routine TVI cures.

After considerable experimentation it was found that the AGC line to the grounded base RF stage of the tuner was inadequately filtered for RF, and HF signals very easily got into the tuner via this path. The cure in this case was to place a 15k ohm resistor with the AGC terminal on the outside of the tuner, and then readjust the AGC control in the TV set for minimum interference. Cases of intolerable interference became cureable. Some of these sets also had the coaxial balun omitted from the 300/75 ohm changeover network. It was also found that the aerial system must be in first class condition otherwise intereference is still likely to occur.

Hope these points assist those troubled with apparently unsolvable interference.

73. Rodney Champness VK3UG. ■

Electrical Engineering Department,
Swinburne College of Technology,
Hawthorn, Vic. 3122.
5th January, 1979.

The Editor,

Dear Sir,

I found the article on "Optical Communication for the Amateur" by Chris Long in your January 1979 issue most interesting.

As someone who has had a small amount of professional experience and a great deal of interest in this subject for almost twelve years now, I would like to offer some comments to highlight a few characteristics which could have received a little more emphasis in Chris Long's article. I would also like to mention some widely available, relatively more comprehensive, readable and more recent reference books in this field.

The more recent optical communication systems are solid state systems. They are simpler and hence more easily constructed, smaller, and therefore more portable, more efficient from an energy consumption viewpoint, and perhaps more importantly have wider bandwidth and better signal to noise ratio than the vacuum tube systems described at length by Chris Long.

Assuming that a signal to noise ratio of 20 dB is acceptable for copying voice communications and that the input signal to noise ratio seldom exceeds 50 dB, it is evident that 30 to 40 dB of signal degradation with respect to noise is all that can be tolerated in the transmission system before signal copying becomes rather difficult. A light drizzle or a moderate fog is all that is needed to introduce over 100 dB of signal attenuation over distances as short as 100 metres. It is only when there is very clear atmospheric conditions over the entire path length that less than 30 to 40 dB signal degradation with respect to noise can be achieved

Although Bell Telephone Laboratories, The Australian Telecommunications Research Laboratories, NEC Research Laboratories in Japan and others have had successful solid state optical links operational over ten or more years ago, the unreliability of such links due to attenuation wipe out by rain and fog has forced them to divert research effort into guided optical transmission through optical fibres.

Atmospheric or unguided optical communications systems nowadays almost always use solid state GaAs (or some other semi-conductor) light emitting diodes for transmitting GaAs avalanche mode photodetector diodes are used for receiving

The light intensity transmitted is almost directly proportional to the current through the transmitting diode and the current generated in the receiving diode is almost directly proportional to the light falling on the receiving diode.

The physical theory of receiving and transmitting devices is explained at considerable depth in such text books as —

Yariv, A.: "Introduction to Optical Electronics", Holt, Rinehart and Winson Inc., NY, 1971

Moss, T. S., Burrell, G.J., and Ellis, B.. "Semiconductor Optoelectronics", Butterworths, London, 1973.

Circuits to drive the transmitting diodes have been published in simple books such as —

Mims, F. M.: "Light Emitting Diodes, LED, Circuits and Projects", Howard Sams, Indianapolis, USA, 1972.

Markus, J.: "Electronic Circuits Manual", McGraw Hill, NY, 1971.

Circuits to amplify the received signals are given in most standard books on electronic circuits as well as in specialised well written books such as —

Texas Instruments Staff: "Optoelectronics: Theory and Practice", McGraw Hill, NY, 1977.

Mims, F. M.: "Light-Beam Communications", Howard Sams, Indianapolis, USA, 1975.

As a part of Electronic Design project work, Electronic Engineering third year students at Swinburne College of Technology in Hawthorn have designed, constructed and tested circuits which are small enough to fit into Single Lens Reflex camera bodies which have had photodiodes mounted on the optical axis at the focal plane at the back of the camera.

Parts for transmit and receive circuits, including suitable photodiodes, have cost less than $50. Two medium aperture 35 mm SLRs with defective shutters have cost less than $40. The test link at Swinburne at its best so far has had a 40 dB S/N ratio for a 10 kHz bandwidth over the length of a 50 foot corridor in the Electrical Engineering Department. With design improvements I believe it should be possible to achieve a video bandwidth at about 40 dB S/N over about 1 km.

It is worth noting that the total light output and the beam light energy flux density are less han 1 per cent of those from common four D cell hand-held torch lights.

Because of the unreliability of such systems due to attenuation by atmospheric precipitates, it is unlikely to be used by commercial or governmental bodies to any significant extent in the foreseeable future, even though the technology has in fact been available for quite some time.

Because of the very high directionality of beams, line of sight infra-red links could be used for normal TV communication between two amateur stations with only a very small likelihood of interference to or detection by anyone else engaged in much the same type of activity.

All those who use large bill boards and flashing lights to broadcast information across many kilometres from tall buildings are already using the optical band for communication purposes.

People with hearing and speech handicaps use the optical communication channel as the most important channel of communication. Lip readers often violate privacy laws using the optical communication channel.

It would therefore be interesting to see how telecommunications authorities formulate rules to govern optical communication. Until any serious conflicts of interest can be predicted reasonably accurately, telecommunications authorities are not likely to prevent amateurs and others from conducting research into optical communication.

Yours faithfully,
Dayal Abeyasekere,
M.Sc., Ph.D., M.I.E. Aust. ■

AFTERTHOUGHTS

ADDITIONAL MODIFICATION TO THE FT100B — November 1978, p. 15.

The link across the two diodes in Fig. 1 should be omitted. ■

A SIMPLE AND ECONOMICAL SSB 80 METRE RECEIVER

Due to a technical fault, the PCB on page 24 of December AR did not reproduce properly. We have printed it again for those who may have run into trouble. ■

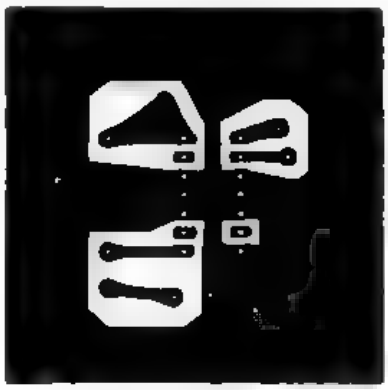

FIG. 2: Audio Board

AN ACTIVE DX RECEIVING ANTENNA November 1978, p. 15.

Here is some additional information for constructors of this circuit.

The transistor Q1 in Fig. 2 may be a 2N3819 or similar RF FET with good gain. In Fig. 2 Q2 in the breadboard constructed by the author was a 2N3638. Any PNP RF amplifier should be suitable, particularly those with good high signa capability and low noise figure Other suitable types include 2N4122, 2N4917, etc.

The author wishes to apologise most sincerely to those people who wrote requesting this information and were incorrectly given a list of NPN transistors, such as 2N3563, 2N3866, etc. Apparently the author suffered an attack of temporary imbecility

The RFCs should be 1 mH or so A single pi wound coil RFC of 1 mH has been available through various common component retailers. The reactance should be more than 500 ohms over the whole frequency range of interest.

When the circuit in Fig. 3 is set up, R must be adjusted so that Q2 draws a useful collector current. Voltages taken from one unit are as follows: Source of Q1 (the junction of the 820 and 8.2k ohm resistors connects to this), plus 2.5V. Source of Q3, plus 2.5V. Collector of Q2, plus 6.5V. All voltages were measured from ground with a 20k ohm per volt voltmeter. The voltage across R was 0.6V. R consisted of a 200 ohm potentiometer in series with a 100 ohm resistor. The supply voltage was varied from 10 to 15V — only a small effect on any of the above voltages was noted.

A tantalum capacitor of 4.7 uF or so may be necessary across the supply rail to prevent oscillation.

Note that if the gain is considered inadequate it may be increased by bypassing the 820 ohm resistor with a 0.1 uF capacitor. An RFC may also be placed in series with the 8.2k ohm resistor to increase the gain further.

The circuit is most successful with antennae less than 0.05 to 0.1 wavelength long at the highest frequency of use. A CB whip is too long except for frequencies less than say 10 MHz. An L network would be better for matching a CB whip.

Antennae 0.1 wavelength and longer will provide sufficient match to 50 ohm coax for the amplifier to be of marginal use. The presence of strong broadcast stations will also make the use of a longer antenna unwise as strong cross-modulated "birdies" will appear at the low end of the HF spectrum

Beware of shunt capacitance — either due to layout or that inherent in some components. This will cause the gain to fall off rapidly at the higher frequencies. ■

QSP

MARRIAGE

Heard the other day — Marriage has three rings associated with it —

- Engagement Ring
- Wedding Ring
- Suffering. ■

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SPECIFICATIONS

● Frequency Range: 1.8 to 2.0 MHz, 3.5 to 4.0 MHz, 7.0 to 7.3 MHz, 14.0 to 14.35 MHz, 21.0 to 21.45 MHz, 28.0 to 28.5 MHz, 28.5 to 29.1 MHz, 29.1 to 29.7 MHz, WWV — 15.0 MHz (receive only) ● Mode: SSB (USB, LSB), CW ● Antenna Impedance: 50 to 75 ohms ● RF Input Power: SSB: 200 Watts PEP; CW: 160 Watts DC ● Carrier Suppression: Better than 40 dB ● Sideband Suppression: Better than 50 dB ● Spurious Radiation: Better than 40 dB ● AF Response: 400 to 2,600 Hz ● Receiving Sensitivity: 0.25 μV for 10 dB (S + N)/N ● Receiving Selectivity: SSB, 2.4 kHz/—6 dB, 4.4 kHz/—60 dB; *CW, 0.5 kHz/—6 dB, 1.5 kHz/—60 dB (*with optional CW filter) ● Image Ratio: Better than 50 dB ● IF Rejection: Better than 50 dB ● Dimensions: 333W x 153H x 335 D mm ● Weight: 15.0 kg

VFO-520S SPECIFICATIONS

● Frequency Range: 5.5-4.9 MHz ● Dimensions: 166W x 150H x 190D mm ● Weight: 3 kg.

SP-520 SPECIFICATIONS

● Speaker Diameter: 120 mm ● Frequency Response: 100-5,000 Hz ● Dimensions: 160W x 150H x 190D mm ● Weight: 1.4 kg

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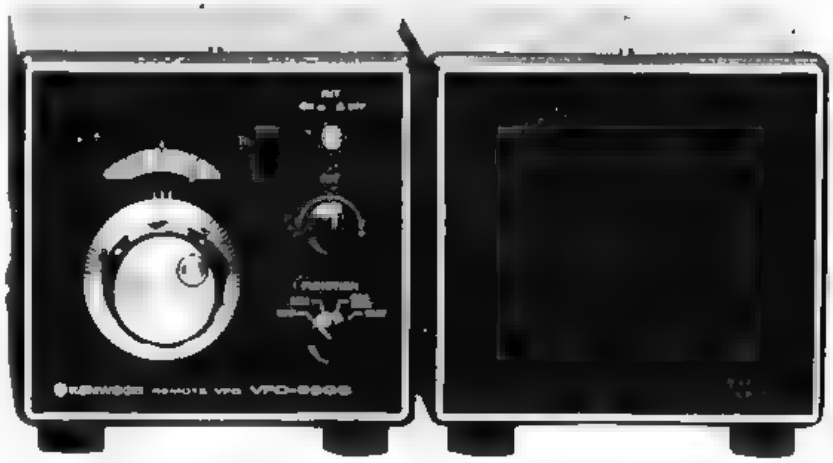
● YG-3395C . . . 500 Hz CW Filter ● DG-5 . . . Digital Display



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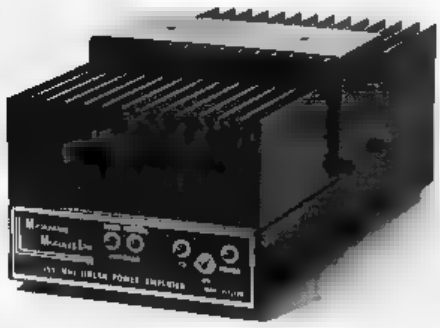

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- **SUPPLIED WITH POWER LEAD AND ALL CONNECTORS**

SPECIFICATIONS

Power Output: 80 watts minimum RMS output, 100 watts RMS typical.

Power Input: 10 watts nominal for 80 watts output.

Frequency Bandwith: 144-148 MHz @ —0.5 dB.

Power Requirements: 12.5V nominal @ 12 amps maximum for 80 watts output. 13.8V maximum.

RF Input Connector: 50 ohm BNC.

RF Output Connector: SO 239.

Weight: 4 kg (8 lb. 13 oz.).

Overall Size: 315 x 142 x 105 mm (12⅜ x 5⅝ x 4⅛ In.).

Price Amateur Nett $265

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HEAR THE 10 METRE ACTIVITY ON YOUR 2 METRE RECEIVER!!

10 METRE CONVERTER — TYPE: MMC 28/144

SPECIFICATIONS

Input Frequency Range: 28-30 MHz.
IF Output Frquency: 144-146 MHz.
Frequency Bandwidth: 2 MHz @ ± 0 5 dB.
Overall Gain: 15 dB min
Overall Noise Fig.: 1 8 dB
Size: 110 x 60 x 31 mm.
Weight: 250 g
Oscillator Frequency: 116 MHz
Max. Frequency Error at 28 MHz: ± 1 kHz.
RF Connectors: 50 ohm BNC
DC Power Requirements: 11-13.8V @ 50 mA.

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AMATEUR SATELLITES

Bob Arnold VK3ZBB

There has been a considerable fall-off in activity through satellites during the past few months possibly caused by some of the difficulties in communication such as high noise levels, fading and, for Oscar 8, the Doppler effect. This trend has become apparent since daylight saving commenced in the Eastern States; perhaps the generally late hour of satellite acquisition has something to do with the lack of activity.

OSCAR 7

AO7 is now in a serious condition. It is still responding to telecommand but when left alone it tends to switch to Mode D, which is the recharge Mode, without either transponder or beacon in operation. The inference of this is that nothing will be heard of AO7 unless a command station switches it on. It would appear that two of the ten NI-Cad cells have shorted out and if one of these goes open circuit that will be the end of AO7.

Due to the low voltage, which is now between nine and ten volts, the Mode B telemetry is sending meaningless figures but the Mode A telemetry is still operating.

AO7 is now over four years old, and has given us good service, particularly on Mode B. With a little care it may be possible for the satellite to last the four years eight months life of AO6.

OSCAR 8

AO8 is in good condition and operating satisfactorily on both Modes A and J. Wednesday is the special experiment day and on these occasions it is possible to find AO8 in both Modes for some orbits. This can be observed from the telemetry — in Mode A, channel 6 normally indicates a Code 601 but when Mode J is also working a figure of 620 will be observed. In order to conserve AO8, operate on the minimum power to acquire the satellite and never make the down-link signal significantly stronger than the beacon.

RUSSIAN SATELLITES

I am sorry that the information given in the January edition of AR, particularly so far as the predictions were concerned, was way out, but as I indicated then, those notes were written only a few days after the satellite was launched when little was known of its parameters. Even today, a number of questions remain unanswered, but it would seem that we do have the orbit times under control and the predictions given in this issue should be a little more accurate.

The daily progression of the reference orbit is 4 minutes 42.6 seconds and 2.724 degrees to the West. These figures are a little greater than those previously published and give a rather unusual set of acquisition times, quite different from those applicable to the AMSAT satellites.

It is now confirmed that there are two satellites, the second one running fifteen minutes later than the first and 4 degrees further West. I will "stick my neck out" and give a few estimated acquisition times for RS.1 during February —

On Sunday, 4th February, Orbit 1206 should be heard 0128Z on Ascending Node 31. This will be a north-south orbit crossing the equator immediately above Australia at 226 degrees West.

On Saturday, 10th February (Sunday morning local time), the first orbit to be heard will be 1288 at 2201Z with an AN 350. Again, a north-south pass. At 1040Z Sunday we should hear a south-north pass.

On Saturday, 17th February (Sunday morning local time), the first pass to be heard will be 1372 at 2234Z on AN 10 N-S, and again we shall hear it on Sunday at 1110Z on AN 190 S-N.

From the information given above, you should be able to calculate the time and position of orbits subsequent to those given and also for other days of the week. The orbit is two hours approximately and the Westerly progression 30 degrees.

It is now confirmed that if the input power to the satellite is excessive it will automatically switch off, and it appears this is a quite common occurrence as only on rare occasions has the transponder been working. We have heard the beacon on many days but have only enjoyed working through the satellite three or four times when communication has been first class. Therefore, keep your power down to under 10 watts ERP and don't let Australia be the cause of switch off.

There is no sure way in knowing the status of the Russian satellites; all one can do is to listen to as many orbits as possible and hope the transponder is switched on. If you hear a U or a K being sent after each bit of telemetry you can be assured that it is not on, but if a W or O is heard it probably is switched on. I hope I may have some more information on the interpretation of telemetry data for our next edition. ■

ORBIT PREDICTIONS — MARCH 1979

March	AO7			AO6			RS1		
	Orbit	Time Z	Long.	Orbit	Time Z	Long.	Orbit	Time Z	Long.
1	19623	0105	78	5025	0032	51	1505	0026	70
2	19635	0005	63	5040	0037	52	1517	0031	72
3	19648	0059	76	5054	0042	53	1529	0035	75
4	19661	0153	90	5068	0047	55	1541	0040	78
5	19673	0053	75	5082	0053	56	1553	0045	81
6	19686	0147	88	5096	0058	57	1565	0050	83
7	19698	0046	73	5110	0103	59	1577	0054	86
8	19711	0141	87	5124	0108	60	1589	0059	89
9	19723	0040	72	5138	0113	61	1601	0104	92
10	19736	0134	85	5152	0119	62	1613	0108	94
11	19748	0034	70	5166	0124	64	1625	0113	97
12	19761	0128	84	5180	0129	65	1637	0118	100
13	19773	0027	68	5194	0134	66	1649	0123	103
14	19786	0121	82	5208	0139	68	1661	0127	105
15	19798	0021	67	5221	0001	43	1673	0132	108
16	19811	0115	80	5235	0007	45	1685	0137	111
17	19823	0014	65	5249	0012	46	1697	0141	114
18	19836	0108	79	5263	0017	47	1709	0146	116
19	19848	0008	64	5277	0022	49	1721	0151	119
20	19861	0102	77	5291	0027	50	1733	0156	122
21	19873	0002	62	5305	0033	51	1744	0000	94
22	19886	0056	76	5319	0038	52	1756	0005	97
23	19899	0150	88	5333	0043	54	1768	0009	100
24	19911	0050	74	5347	0048	55	1780	0014	102
25	19924	0144	88	5361	0053	56	1792	0019	105
26	19936	0143	73	5375	0058	58	1804	0023	108
27	19949	0137	86	5389	0104	59	1816	0028	111
28	19961	0037	71	5403	0109	60	1828	0033	113
29	19974	0131	85	5417	0114	62	1840	0036	116
30	19986	0030	70	5431	0119	63	1852	0042	119
31	19999	0125	83	5445	0124	64	1864	0047	122

PROJECT ASERT — PROGRESS REPORT

Bob Arnold VK3ZBB
Ken McCracken VK2CAX

In the September 1978 edition of "Amateur Radio" a report appeared indicating the Federal Executive's support for a scientific investigation of the propagation of VHF radio waves. This study has been named Project ASERT (Amateur Service Experiment In Radio Transmission) and a working group has been formed to initiate and co-ordinate the study. This Committee consists of Bob Arnold VK3ZBB as Co-ordinator, Ken McCracken VK2CAX Scientific Leader, Peter Wolfenden VK3ZPA representing Federal Executive, with Les Janes VK3BKF and Greg Brown VK3YGB as hardware leaders.

The Committee decided to conduct this study in two phases, phase 1 being limited to monitoring a small number of transmission paths during the summer of 1978-79, and phase 2, a more detailed study of more paths, and involving additional receiving stations for a period of at least

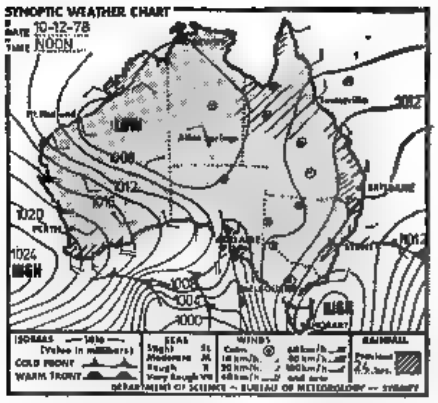


FIGURE 2

twelve months from June 1979. Phase 2 is expected to cover the period of high sunspot activity now projected for early 1980. Phase 1 is now well under way and signals on the following routes are being recorded on a 24 hour basis: (a) Brian Yeoman VK7ZBY in Launceston is monitoring the VK3 and VK5 144 MHz beacons located in Melbourne and Adelaide respectively. (b) David Minchin VK5KK, at Waseleys, near Adelaide, is monitoring the ZL beacon on 52.5 MHz at Palmerston North and is ably assisted by Col Hurst VK5HI and Eric Jamieson VK5LP. (c) Ken McCracken (Sydney) is monitoring the VK5 beacon (52 MHz), and (d) a receiving system constructed by the ASERT Group and located at the QTH of Bruce Roberts VK3ZMR commenced monitoring the VK5 beacon (144 MHz) on New Year's Day. The VK3 station has been designed to obtain experience with receiving equipment and specialised recording devices in preparation for phase 2. It is anticipated that this installation will be moved to a new and permanent QTH in Melbourne at the end of February.

The Committee is grateful for the interest shown by the amateurs mentioned above and for the co-operation that has been forthcoming from the Brisbane VHF Group and Selwyn Cathcart ZL2BJO of Massey University, New Zealand. It is anticipated that the assistance of these stations will be co-opted for Phase 2.

The Committee is currently deliberating on the standards which should be adopted for antennas, receivers and recording

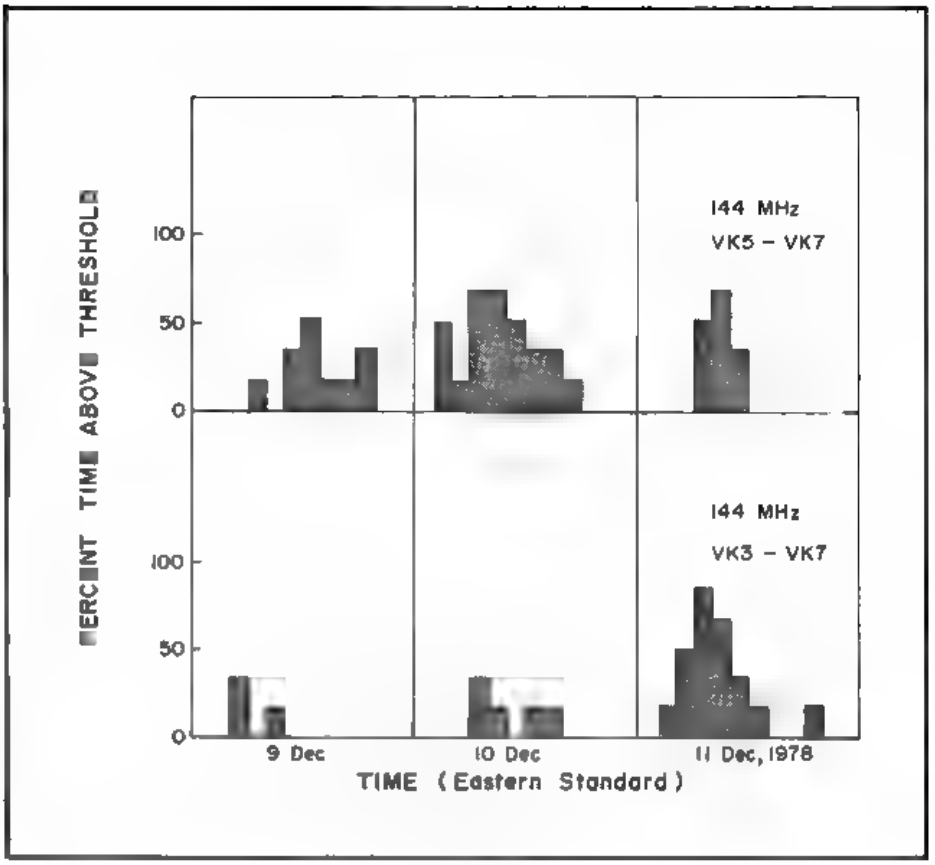


FIGURE 1

equipment and these will be determined in the near future to enable consistent standards to be maintained at all receiving stations.

THE FIRST RESULTS

Brian Yeoman VK7ZBY was the first ASERT station to become operational. His equipment is housed in the control tower at Launceston airport and uses a printing calculator as a data recorder.

Figure 1 displays data obtained from the Launceston receiver during the period 9-11 December 1978. It shows the fraction of each hour for which the beacon signal exceeded the recording threshold, which was set at 0.25 microvolt. The synoptic weather chart for 10 December is given in Figure 2.

It can be seen that there were substantial 144 MHz openings over both paths throughout the period, presumably associated with the pressure high over Tasmania at the time (Figure 2). The VK5 to VK7 opening was longest on 10 December, while the VK3 to VK7 opening was longest on the following day, consistent with the eastward motion of the pressure high. Throughout the period, it can be seen that the openings tended to occur in the mornings.

THE FUTURE

It is very desirable that the investigation be extended to other Australasian paths, and to the TEP route to Asia, particularly on 144 MHz. Amateurs or groups of amateurs who wish to contribute to this investigation through the establishment and operation of receiving stations should contact the ASERT Co-ordinator, care of this magazine. ■

ARMY WIRELESS SETS OF WORLD WAR II

Compiled by Rodney Champness VK3UG Photos by Ken Reynolds VK3YCY

9. The No. 19 Mk. II is really two transceivers in the one case. It has a small super regenerative receiver and transmitter working on nominally 240 MHz which was used for intercommunications between nearby units, and the main transceiver which covers 2 to 8 MHz. In adition it has an intercom amplifier for communications within the vehicle it is mounted. Until a few years ago these sets were still being used in army tanks. Probably they needed to be carried in a tank as they weigh 42 kilograms with power supply and base attached. The power supply is a 12 volt DC genemotor and the set's current drain on CW transmit is 12 amps and on receive 7.5 amps — a big user of power. The final PA valve is an 807 and could be expected to put out about 15 watts on CW.

The set is quite complicated and not easy to work, but must be rugged to withstand the pounding it would have got in a tank. They were moderately popular with amateurs in the USA but I don't know personally of any amateurs who used them — although some pirate types did a few years back. The No. 19 when coupled with

the RF amplifier No 2 could run up to 60 watts output on CW and 30 watts AM. Quite a potent signal, and a very heavy drain on a 12 volt battery

10. The AR8 receiver is the companion to the AT5 transmitter. It is a 6 band VLF, MF and HF receiver, covering from 140 kHz to 20 MHz with a small gap in the tuning range between 740 and 765 kHz. The IF frequency is 755 kHz. The receiver has two RF assemblies, one tuning from 140 kHz to 2 MHz and the other from 2 MHz to 20 MHz, and as a result of this, the receiver can be preset to two frequencies which are selectable by flicking one switch. In addition to its ordinary function as a communications receiver, it has direction finding facilities in the 140 kHz to 2 MHz range. This set was extremely popular and was used in aircraft, on land and in ships, altogether a versatile set. The set obtained power from 12 to 24 volt genemotors or from the Type S 240 volt AC power supply, which also powered the AT5 transmitter. The AR8 is not an easy set to service, and to work on many parts the various RF assemblies must be completely stripped out of the set — certainly not a job to be undertaken on the battlefield.

The AR8 also proved to be a very popular set with amateurs and many of these sets are still used by short wave listeners. Many modifications appeared in the various magazines to provide bandspread and so forth on amateur bands. One of the most popular mods was to change the audio so that a speaker could be driven instead of headphones. The going price for these units in good order operating off AC power is still in the vicinity of $50, so they must still be good 30 to 35 years after they were made. ■

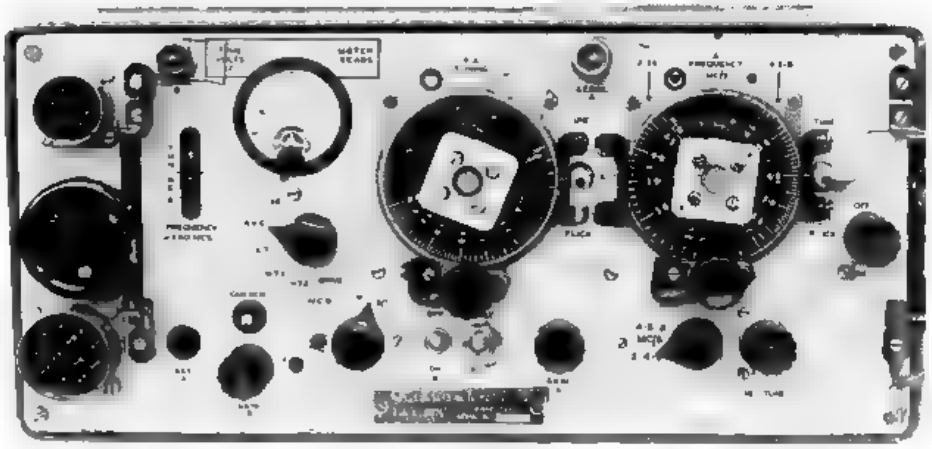


PHOTO No. 9

PHOTO No. 10

QSP

RFI AND POLICE SPEED TRAPS

In Radio ZS of June 78 there is a very interesting item concerning the vulnerability of police speed measuring devices to RF interference.

The equipment in question is of both the radar type and the amphometer type

After tests a speeding ticket was withdrawn as it was found in the tests that the various types of speed measuring equipment were affected by RF from a mobile transmitter in the car whose speed was being measured. The tests showed a wide variation in readings and resulted in the ticket being withdrawn.

The equipment used in ZS may be different to that used locally but if a similar susceptability to RFI exists then there could be some interesting local cases

RADAR THREAT TO 70 CM BAND

According to Ham Radio for August 1978 a potential radar interference threat to the 420-450 MHz band is being studied by both AMSAT and the ARRL.

The radar threat is from the US Air Force "PAVE PAWS" long range radar to be installed firstly at Cape Cod Massachusetts and later in California.

This very long range radar has an Average ERP of 1 Billion watts approximately. This would result in a moon reflection of a 10-20 microvolt signal and have significant effects on both humans and equipment within quite a large radius of the antenna. ■

LETTERS TO THE EDITOR

Any opinion expressed under this heading is the individual opinion of the writer and does not necessarily coincide with that of the publisher.

The Editor
Dear Sir

The push-button tuneable AM car radio evolved over many years as a device which combines convenience (push-button selection, instantly reprogrammable), flexibility (continuous tuning), and above all, safety for the car driver. The present generation of mobile transceivers for 2-metre FM fails to meet all these requirements, being either inconvenient and therefore dangerous because of the time taken to select a new channel (synthesiser rigs), or inflexible because of a limited number of fixed channels which can (sometimes) be reprogrammed at home.

I offer the following specifications for the 2m mobile rig I would like to buy — manufacturers please take note.

(a) 12 channels selectable by rotary switch (as on the IC22S).

(b) One of the above switch positions to revert to synthesiser operation in 25 kHz steps with the usual setting knobs.

(c) Digital display showing the frequency in use (on all 12 switch positions).

(d) Fixed channels to be programmable with non-volatile CMOS memory (as in recent electronic calculators) simply by setting the channel selector switch and the synthesiser frequency, and then pressing a "store" button. Simplex or repeater up/down operation to be included in this programming so that these switches need only be used manually in the 12th synthesiser position of the channel selector switch, and of course for programming.

(e) Magnitude of repeater shift (normally 600 kHz) to be reprogrammable in a similar way.

(f) Continuous scanning of all 12 channels to be available.

(g) Transmitter output power to be 25W/5W, thus combining reasonable battery economy with an ability to get out of some of our VHF "holes" in hilly terrain.

There is no reason with present technology why such a rig should not be available today.

Yours faithfully
Guy Fletcher VK2BBF. ■

The Editor,
Dear Sir,

This letter is to inform you and your Licensed Amateur Radio Operators that the 2 metre repeater operated by the Darling Downs Radio Club at Toowoomba VK4RDD will change frequency on 2nd December, 1978, from Channel 44 repeater to Repeater Channel 74 (input 147.7 MHz, output 147.1 MHz). The change has been approved by the Post and Telecommunications Department.

The reason for the change is to eliminate interference problems caused by the allocation of the same repeater channel (44) in adjacent areas, viz. Bundaberg, Toowoomba and Lismore where operators in some locations can access two and sometimes three repeaters at the same time.

The Club meets at the Toowoomba Education Centre, Baker Street, Toowoomba, at 7.30 p.m. on the last Friday of every month except December. Visitors are welcome.

A club net on the repeater, channel 74 is held every Thursday night at 8.00 p.m. local time.

The Secretary's address is 38 Wentworth Street, Toowoomba.

Yours faithfully,
G. J. Pennycuick VK4AGP,
Secretary/Treasurer ■

The Editor
Dear Sir,

The Auction Sale conducted for the Institute by the NSW Division on Saturday, 28th October, was very successful both in terms of the volume of goods for sale and the money raised.

Despite the poor weather conditions an estimated 600 plus attended.

All the items for the Auction had been donated by the Dick Smith Group. Items included a wide range of shop soiled lines, samples, etc., all of which were sold on the day.

$3,500 was raised and goes to the Institute to be used nationally in assisting the education of future members of the Amateur Radio Service.

Our thanks to your publication for the excellent publicity given in recent issues, which no doubt contributed to the attendance and success.

My own thanks also to the many helpers who assisted on the day and to Terry VK2TQ, who did an excellent job as the Auctioneer.

73 Tim Mills VK2ZTM,
VK2 Division Secretary. ■

The Editor,
Dear Sir,

In reply to the question asked by Mr Champness VK3UG, in "Novice Notes", AR September 1978, "Are They the First?", not quite. Graeme and I received our Novice Amateur Station licences, numbers SC10 and SC11 (VK8NGR and VK8NSU) on 7 September 1976, having been successful in the first Novice Amateur exam held in March 1976.

The station receiver was a Lafayette KT-340 and 80 Mx transmitter "OM" brew, 10 watts, built entirely (power supply too) from an old TV. The antenna was a shortened vertical, 16 feet of dowelling helically wound with about 130 feet of wire, mounted on the galvanised iron roof (the ground plane).

On 6 October 1976 Graeme obtained his full ticket, becoming VK8GG, and I graduated to VK8SU a couple of months later. Possibly VK8NGR is the shortest lived novice (one month)! A few people have asked what happened to him.

The station rapidly expanded, an FT101E made operating a lot easier (for both ends of QSOs) though we still both enjoy using the home brew. We have just returned from a holiday in the U.K. where we operated during our travels. The most pleasing contact for myself was with DL3CU in Essen on 80m using a home made solid state 10W Tx. DL3CU was using his 2m antenna and I was using a UHF TV antenna (aided by a splendid little transmatch, ARRL Handbook 1977: A Transmatch for QRP Rigs).

Sue VK8SU — the shack now.

It is interesting to note that when we Darwin Novices (also Terry, VK8NTA, Doug, VK8NJD/ZJD, Ed, VK8NER/ZER and Jeff, VK2NGN/8) started out with our 10W transmitters, a number of full call operators were inspired to see what they could do with 10 watts. ■

3.1.79

The Editor,
Dear Sir,

I refer to the "QSP" on page 36 of AR for January. Once again I draw your attention to the fact that the WIA in Australia has its own official DXCC organisation ably administered by Brian Austin VK5CA.

Therefore, it is unnecessary, and far too costly to forward QSL cards to the ARRL in U.S.A. for DXCC credits. Why not support our very own DXCC Department!

A quick check of the last published DXCC list, in AR, shows at least a dozen VKs with over 300 countries confirmed, none of whom appear in the "QST" list for reasons outlined above.

Obviously the writer of this "QSP" has not done his homework and it is not the first time this unfair criticism of the Australian DXer has been published in AR!

Would it be possible to have more frequent DXCC listings published please?

Sincerely,
Fred Lubach VK4RF ■

20.12.78

The Editor,
Dear Sir,

A footnote from you does not excuse the printing of the article about the "Wooley Bum Certificate of Achievement Award" in December AR.

I, for one, have reservations about accepting a "Wooley Bum" number until truthful answers are given to the following questions:—

Who is "David Ramsbotom"?
Why does he use an alias?
Does he often pirate on 27.355?
Has he ever pirated on 28.570?
Have any "Wooley Bum" members praised on 2 metres?

Has "David Ramsbotom" ever been prosecuted by P&T?

The name of the club is of an extremely low standard, as is the layout of the certificate, e.g., the dog urinating on the seal. I'm sure on these two points I do not stand alone.

If answers are given truthfully and all is revealed about the somewhat dubious character and activities of the club, my reservations may be removed. Until then . . .

VK3N — Name and address supplied but withheld at writer's request.

EDITOR'S NOTE: Perhaps "David Ramsbotom", whoever he may be, would care to write to me with answers to the above — (VK3UV). ■

The Editor,
Dear Sir,

On the 21st of January, 1979, with my friends I will be flying from Australia to Lord Howe Island, VK2. For a period of approximately nine days our party will be active on 10m, 15m and 80m.

The stations callsigns are VK2NUN/Port Russell, VK2NDZ/Port Bill, VK3NKO/Port Merv.

Our QSL information is c/o VK2NUN, Box 404, Casino, N.S.W. Australia 2470.

Thanking you,
Russell Ian Ashdown VK2NUN

Editor's Note: Received 29.12.78 which was too late for January AR. ■

The Editor
Dear Sir,

In 'Amateur Radio' Magazine you ask readers to "support our advertisers" but country members have no other option. Our sole contact with equipment suppliers is through your pages, equipment must be purchased through mail order and are usually paid for in advance with the order.

Now when one examines these advertisements and compares prices one comes up with some interesting figures. For example a TH6DXX ranges in price from $300 to $399 a 33% difference (AR Nov. 78). In the same issue a Yaesu FT-101E $899 to $975 (or POA you can guess the greater) also a Kenwood TS520S from $685 to $789 (or POA again) and the humble 18 AVT from $125 to $155

These are just a few examples and I also add that one advertiser had the same TS520S for two different prices on the one page.

Well, if the firm with the cheapest price is making a comfortable and reasonable profit then all the others are making a huge rip-off. Just how can they justify these prices? And to boot most of these people are fellow licenced amateurs.

What can be done? (1) More letters to the Editor, just to show that there are other concerned amateurs is one way. (2) I urge fellow amateurs to shop around and always buy the cheapest available.

(3) The WIA should represent its members, as a consumer group, and put pressure on retailers of amateur gear to keep their profit margins at a sensible level

(4) Further to (3) above the WIA being a registered Company with all members share-holders should establish a Subsidiary Company for the purpose of importing and retailing amateur gear to its members only. A full time manager may need to be appointed. I feel this would be a real service to country members and certainly would encourage higher membership of the WIA.

Well, I've had my gripe now, I would like to know the thoughts of other amateurs and some more constructive ideas.

Alan Parr VK4AJA ■

9.12.78

The Editor,

Dear Sir,

I refer to page 37 of December, 1978, issue reporting the formation of the "Wooley Bum" Club and the introduction of its so-called "achievement award".

Those of us who hold the Amateur Service in esteem, based on its long and worthwhile record of public benefit and its fostering of "the amateur spirit", must feel dismayed at the invasion of our Service by "ex 27 MHz 'Bootleg' operators", who blatantly flaunt their illegitimate ancestry in our Institute journal and break down the standards which we have come to regard as inherent in the Amateur Radio situation.

We have already suffered and lost the invasion of our 27 MHz amateur band to the illegal, ruthless and thoroughly forces of pirate radio, big business and political expediency. Now we can see the thin edge of the wedge in phase two — the invasion of the Amateur Service by a group determined to inject the sub-standard mental processes of the dregs of the CB movement

To find that your — OUR — Amateur Radio publication gives support and publicity to this latest conspiracy is disturbing — disgusting — in the extreme

I have supported the upgrading of CB users to Amateur status and, in fact, have performed in the instructional area to introduce ex-CB Novice operators since the inception of the Novice scheme. However, under no circumstances do I condone the new development, whereby such groups as that encouraged by your editorial policy will infiltrate the Amateur Radio movement and bring to it their "cocker" attitudes and sinister policies

I expect that the WIA at Federal level will get up from the floor and resist vigorously similar attempts by this second wave of invaders. STRONG and vigorous leadership is needed in this new situation. I shall be pleasantly surprised if it emerges on the basis of past performance during the CB pirate invasions. Meanwhile, I shall put my Membership Renewal Notice aside and wait until adequate action occurs to warrant my continued support of an Institute for which I have had a long-established affection and which I have supported for many years.

Rex C. Black VK2YA ■

4.12.78

The Editor,

Dear Sir,

Recently having sat for the November AOCP Telegraphy Examination, I am concerned about the apparent confusion regarding the morse code being sent. I understand that, a few years ago, the WIA requested hand sent morse code to be abolished and ITU machine morse be used, and for good reason

Apparently, due to a more recent request from the WIA not to use ITU machine morse for the 5 WPM novice examinations, the Post and Telegraphs Department has decided to use hand sent morse (by hand sent I mean just that, not even a bug or any other aid) for all Telegraphy Examinations they conduct, both commercial and amateur. I am sure that this was not the original intention.

What I believe we require is ITU machine morse for AOCP and commercial exams and for novice exams ITU machine characters at 8 - 10 WPM with the spacing between characters and words increased to bring the text back to the 5 WPM requirement.

At the present, all we have is confusion.

Can we please get back to a nation-wide standard, knowing that if we practice and learn a particular style of morse code, that is what the Posts and Telegraphs Department will be using at the exam-[illegible]s.

Peter S. Collins VK3ZVO.

EDITOR'S NOTE:— The P. & T. told WIA that ITU standard was to be used and would be machine sent however, some technical problems arose preventing this and hand sent morse still remains. We agree that novice morse should be 10 WPM characters with longer spaces between words. This was brought before P. & T. some time ago and has not yet been resolved. Many complaints have been received from members, and the matter will continue to be pursued by the WIA. ■

26.10.78

The Editor,

Dear Sir,

I would like to make some comments and suggestions re the "VK-ZL-Oceania DX Contest".

Before proceeding further I would advise readers to study the rules of the 1978 contest as found in AR, August 1978, page 48. It will be noted that a considerable number of mistakes appeared in the rules. The closing date for VK-ZL stations was given as ONE YEAR later than it should have been. Rule 10 parts (c) and (d) were listed as part (b) in three places.

1) **PERIOD:** Currently the contest starts at 1000 hrs. UTC Saturday and finishes at 1000 hrs. Sunday. Why not start the contest at 0000 hrs. UTC Saturday and finish at 0000 hrs. Monday. All other major DX contests start at 0000 hrs. Saturday and run for 48 hrs.

The current time period is very restrictive when examined in detail, very few people get the chance to operate throughout the whole 24 hrs. due to commitments to work and families. Out of 24 hrs. the 'average' operator, if there is such a being, would be lucky to get in 8 hrs. time on air

By increasing the period from 24 to 48 hrs. everyone gets a far more reasonable chance to compete and a far more even spread of conditions than in one critical 24 hr. period. To even things out there could be two different sections, a 24 hr and a 48 hr.

2) **CYPHERS:** The rules for the 1978 contest stated that the serial number following the signal report "may begin with any number between 001 and 100 for the first contact . . . "WHY? What possible point can there be in starting at any number other than 001 if serial numbers are to be used? I can see little justification for the use of serial numbers in a contest anyway apart from the concept of using the contest as a traffic handling exercise. For far too many operators serial numbers tend to become no more than an ego trip and obviously the very high contest number when received makes the station just starting feel at a great disadvantage.

3) **CLARIFICATION OF RULE 9 (e):** As this rule currently stands I consider it open to different interpretation by various operators. e.g. W6AA/1 is counted as a W1 for scoring purposes. This is clear enough but what do you count the prefix of say JK1AAA/5 as? The answer cannot be JK5 as currently no such prefix exists, only JA5 or JH5. The operator however cannot be expected to know this sort of information particularly with the mass of strange prefixes in areas such as the U.S.A. where even the locals are staggered by it all.

4) **LOGS:** Anyone who has tried to write up a contest log with 1,000 plus QSOs will know only too well what a chore this is! Most operators use a rough contest log then transfer it to the station log after the contest is over. The next step is to write up the contest log for sending to the organiser for checking. This means that most entrants end up writing the details up to three times. Not only is this a terrible bore but also a ridiculous waste of time and effort, just to prove in a fashion that your entry is honest. Why should the 99.9% of honest operators have to do this to indicate that they aren't cheats? After all, there are plenty of chances for the dishonest operator to cheat if he wants to.

I can see no valid reason why the GCR (General Certification Rule) as used for Award applications couldn't be used with contests. Any two other Amateurs of higher licence class could then certify a summary sheet showing the essential details of the contest entry after viewing the operator's station log. This would save untold hours of writing and in addition save considerable amounts of postage in forwarding entries overseas where airmail is the only sure (but awfully expensive) way of ensuring the entry arrives in time.

Admittedly, the remote area operator may be at a disadvantage using this system, but no more so than currently with awards. Surely the vast majority of honest operators deserve the chance to benefit from this system

Making the business of entering a contest easier can only help make the contest an even more successful one than it is now where vast numbers who take part fail to enter a log because of the enormous work involved

Geoff Wilson VK3AMK. ■

AROUND THE TRADE

VICOM APPOINTED JOSTYKIT DISTRIBUTOR

Vicom International Pty. Limited has been appointed Pacific area distributor for JOSTYKIT of Denmark

JOSTYKIT is a leading manufacturer of high quality kits throughout Europe and is renowned for the attention given to aesthetic design and presentation. The kits include comprehensive instruction booklets giving precise directions for assembly and testing together with circuit diagrams, drawings of components and soldering techniques.

Attractive Scandinavian-style extruded aluminium cases and knobs are available for most of the kits. A spokesman for VICOM said that there had been a huge demand for the kits which give a much more professional look when completed and give the customer a higher degree of satisfaction

Qualified electronic engineers are employed by JOSTYKIT to work on improving existing kits and on new developments.

About 40 different kits are now available and the range will be extended to about 100 kits covering audio, laboratory, amateur radio and other interests. ■

BRITAIN EQUIPS PAPUA NEW GUINEA

[illegible]

A British electronics company ,which has recently provided broadcasting studios in Vienna, France and Kuwait, has obtained a new order for three more broadcast centres from the National Broadcast Corporation of Papua New Guinea. The company had previously had a contract for four other studios in Papua New Guinea.

The company is Neve Electronics of Royston, Herfordshire (southern England) The contract (obtained through Neve Electronics' Australian agents, Magna-Tachtronics) covers design, procurement installation and commissioning of complete radio broadcast centres.

Installation of the equipment has been at Port Moresby, Manus, Kerema, and Goroka, and the stations are scheduled to be fully operational by the end of this year The new order is for studios at Wabag, Vanimo and Daru, which should be on the air by May next year

Each Neve broadcasting centre consists of two studios with technical apparatus room. The equipment for each includes sound-mixing consoles with talk-back and monitoring facilities, while the ap-

paratus room houses programme switching and associated equipment

Neve Electronics International, Cambridge House, Royston Herfordshire Australian Agent Magna-Techtronics, 14 White St Artarmon N S W) ■

YOU and DX

Mike Bazley VK6HD
6 James Road Kalamunda W A 6076

Why is it that AR does not publish a DX column? A question I asked myself and got, what I suppose was a reasonable reply — no one has offered to write one So here goes! I do not suggest that I am the best that is available, but I appear to be the only one obtainable

How does one tackle the numerous problems facing a DX column writer? The main one, of course is being up to date. With copy required well in advance often a DXpedition will have come and gone without any advance publicity being given. **If you believe you would like a DX column then your help is required** Any advance information on any DX activity would be most welcome

Secondly, what is DX? To some it may be the thrill of working a large building in New York (you haven't worked 4U1UN yet?). To others there is the pleasure of a QSO with anyone outside this island continent and to others there is the kick from working QRP

Thirdly, how does one tie in the differing propagation conditions between East and West coasts?

This writer does not suggest he has the answers to these problems but in the ensuing months I hope to present something that may be acceptable Any column is only as good as its readers, comments good or bad, information, photographs are all welcomed and appreciated

Yes, I do call myself a DXer

Yes, I do chase DX on all the HF bands.

Well, 1978 has gone and for some it has been a good year Clipperton finally showed, there was activity from South Sandwich, Iraq and Somalia. Here's hoping that 1979 will bring Bouvet, Burma and China. You never know

Rumour has it that a group of VKs or ZLs are going to activate Spratly during 1979 How about some more information on this one?

Bouvet should have shown by December 24th I hope all those who needed it made it.

For the CW buffs, LU3ZY is active from South Sandwich on the odd occasions. usually around 14025 kHz

At the time of writing (late December) there was still no word from the ARRL whether and when DESECHEO will count Could this be one that got away?

Don't forget to keep your ears open for 601FG if you missed out last time This one should be re-activated in early 1979.

Rumour has it that there could be activity from Peter Island (71 South, 90 East) sometime in February

Finally, don't forget those long path openings on 10 and 15 metres especially during February and March. Ten metres has produced some pleasant DX surprises just before the band closes up for the evening

Happy hunting
QTHs you may have missed
D68AD via G3RWU
GU5CIA via N6MA.
Y.1BGD P O. Box 5864 Baghdad.
601FG via 2MQP

STOP PRESS

BOUVET ISLAND
Ship fouled propellor and was towed back to Cape Town Rumour has it that it should return to Bouvet at end of January and operations will commence by 3Y1VC and 3Y5DQ until mid-February Frequencies to watch are SSB 14300 21300 28600 CW 14030, 21030 28020.

EDITOR'S NOTE We welcome Mike's offer as DX contributor and trust that our readers will give him as much assistance as possible by forwarding your DX comments direct to him. ■

QSP

SPECIAL CALL SIGN
To mark the 150th anniversary of the University of Cape Town, founded in 1829, the SARL will be setting up a special station at the University, with the call sign ZS1UCT, from 17th February to 4th March, 1979 Operations will be all modes on the 10 to 40m bands and an award will be issued — details available from SARL Awards Manager Box 5100, Cape Town 8000, RSA. ■

Masaaki Saito JA8IEV/JD1 operates from Minami-Tori-Shima. QSLs via JA8JL.

ABOVE: DAS OK 1DDL

LEFT· LUDEK OK1HAS.

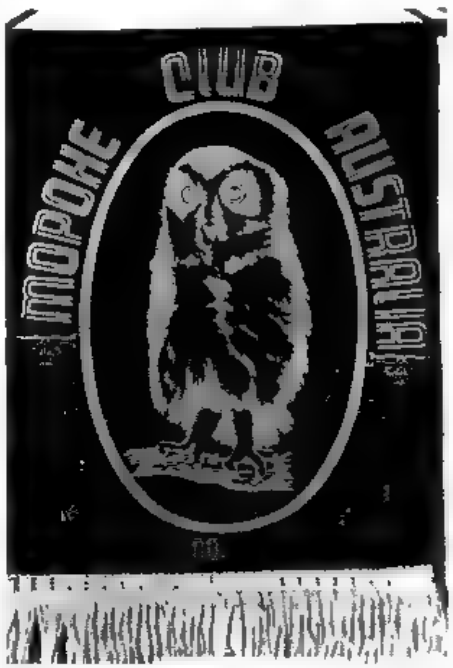
INTERIM MOPOKE CLUB RULES

(Amended 15/11/1978)

1. The purpose of the Club Awards is to.
   (a) Further the use of the bands in the "wee small hours"
   (b) Ensure continuing conviviality among club members.
   (c) Provide some impetus and reward for aspiring nightowls.
2. The significance of the Club name is that the 'Mopoke is a name applied to various indigenous nocturnal birds, in particular the 'Boobook' owl, who features on the bannerette
3. Qualification for initial and continuing active membership is
   (a) A total of thirty hours of operation between 0100 and 0600 local time.
   Contacts which have commenced prior to 0600LT continue to be valid up to 0700LT
   Where contact is between stations in differing time zones, the most advantageous local time shall apply
   (b) The thirty hours must include at least two separate four hour periods of continuous operation
   (c) Contact (within 0100-0600) of one hour continuous with a committee member.
4. The first applicant from each country (DXCC list) excepting P29 and ZL may substitute proven contact with at least five individual committee members, with the 0100-0600 time and one hour duration limitations waived, for requirement under 3(c).
   (b) In the case of P29 and ZL, the 0100-0600 limitation still applies.
   (c) Thereafter however, subsequent applicants from each country already having a charter member must follow the normal qualification rules
5. Once the Club has been 'chartered' in a different country, it may, if it so desires operate as a semi autonomous unit. (it may not change rules without the approval of committee members).
   (b) It is hoped that good interaction would still occur, and to that end, when the time is correct, auxiliary Mopoke net(s) are envisaged, not necessarily limited to 0100-0600LT
6. Any band, and any mode legally permissable.
7. Net operation is permissable, in fact encouraged.
8. In general, contacts are not limited to club members.
9. Membership is open to any country.
10. For continuing active membership (and hence voting rights) the requirement is a total of four hours operation per month within 0100-0600.
11. All time requirements are of course subject to health and other acceptable limitations as determined by the committee from time to time.
12. While charter members are limited to ten in Australia, the initial member from each different country (DXCC list) will become a charter member of the club as a whole, therefore the number of charter members will expand from time to time as new countries join and establish their own chapters.
13. SWL's are also cordially invited to seek membership.
   (b) In their case please substitute "Logged Contact" For "Contact"
   (c) In this case please log 'Time In' and 'Time Out' of station(s) intercepted
   (d) SWL Mopokes will have their club number prefixed by 'L' to differentiate between types of members, and also to individually reward their efforts.
14. It is envisaged that in the very near future special Mopoke QSL cards will be printed and made available.
15. When applying for membership, neither QSL cards nor detailed logs are required ,simply a list of contacts claimed showing date, duration in local time, band and mode employed.
16. Three contacts at random from the list supplied by the applicant will be checked in writing by a committee member
17. The committee initially to consist of the ten charter members in Australia, plus overseas charter members as they join.
   (b) Thereafter, the committee to be elected annually by a simple majority of club members eligible to vote.
18. All decisions affecting the Club to be made by a majority of committee members active at that time.
19. Twenty percent of Club members in writing shall be a sufficient number for a matter to be put to a general vote, the outcome of which shall be binding upon the Club, the number of votes required being a simple majority of all members eligible to vote.
20. Club nets, competitions, awards and constitutional amendments to be decided upon by a simple majority vote of those eligible.
21. The interim net active now is 3565 KHz at and from 1400GMT (Fridays date) Saturday morning local time.
22. Contacts (for qualification) count as from 0100 local time July First 1978.
23. Allocation of membership number and initial award(s) may be effected by any one committee member after consultation with as many of the committee members as may be readily contactable. (Mail/Phone/Club Net)
24. The decisions of the committee shall be final and binding upon all club members unless challenged and overturned by a general vote.
25. A committee decision must be challenged within one month in writing if such a challenge is intended.
26. The basic award shall consist of a bannerette and certificate, with an optional extra of a Mopoke statuette or key chain also envisaged for the future.
27. Subsequent awards and/or endorsements to be endorsed by general vote of those eligible club members.
28. An inactive member may restore voting rights by compliance for one month with the requirements for active membership.
29. The Club can be run as a non profit organisation, except that funds may be accrued for routine overheads and for such purposes as decided by a general vote from time to time.
30. Any funds at all times to remain the property of the Club and to remain under the control of the committee.
31. A formal constitution to be adopted if possible at the First Annual General Meeting

NOTE: Cost (including packaging and posting) of membership, certificate and bannerette $5 Australian (May alter as time goes by to keep up with costs).

Information from R. J. Whitehead VK3NHA.



QSL

EARLY DAYS

Recently an O.T. sorted out his old QSL cards and decided to pass on the information of his CW (VK only) contacts for 2 full years, 1930/31. This was a time when amateurs were on 25 watt max. power. A listing of several points showed by these cards only 1 in 7 "hams" was C. Cont., about 65 per cent self excited rigs. 20 per cent of the QSOs were over the 25W limit. The top 5 of these averaged 80W. 68 per cent; 2 out of 3 hams, used or had an end-fed Zepp (tuned feeders). The rest were: Centre feed Zepp, Single wire feed, Marconi and 500 ohm open wire feed. Receivers 2 valve 40 per cent, 3 valve (0-V-2) 30 per cent, Supers and 3 and 4 valve sets with a SG RF stage 30 per cent.

Tx: 30 per cent were 10W or lower, 50 per cent between 10W and 25W. Over 15W the 210 and TB04/10, also TC04/10. Till December 1931, 2 amateurs claimed 61 countries worked.

— "T P.T.G "

EDITOR'S NOTE: Contributions from Old Timers on their activities in the years approx. 1925-1935 would be most welcome, as there is much information hidden away in log books etc. which will otherwise not be brought to light. (VK3UV)

VHF-UHF AN EXPANDING WORLD

Eric Jamieson, VK5LP
Formaston, 5233

AMATEUR BAND BEACONS

Freq.	Call Sign Location
50.025	6Y5RC — Jamaica
50.050	WA1ENX — Maine
50.060	TI2NA — Costa Rica
50.067	WA6MHZ — San Diego
50.085	WA6JRA — Los Angeles
50.088	VE1SIX — New Brunswick
50.092	W7KMA — Oregon
50.098	KG6JIH — Guam
50.100	ZK1AA — Cook Island*
50.101	FO8DR — Tahiti*
50.104	KH6EQI — Pearl Harbour
50.110	HL9WI — Seoul*
50.110	KG6JDX — Guam
50.110	JD1YAA — Marcus Island
50.110	KX6HK — Marshall Island*
50.500	5B4CY — Cyprus
51 999	YJ8PV — New Caledonia
52.110	HL9WI — Seoul*
52.200	VK8VF — Darwin
52.300	VK6RTV — Perth — 145.000
52.350	VK6RTU — Kalgoorlie
52.400	VK7RNT — Launceston
52.440	VK4RTL — Townsville
52.450	VK2WI — Sydney.
52.500	3D2AA — Fiji
52.500	ZL2VHP — Palmerston North
52 500	JA2IGY — Nagoya
52.600	VK6RTW — Albany
53.000	VK8VF — Mt. Lofty
53.100	VK0MA — Mawson
144 101	VK2WI — Sydney
144.400	VK4RTT — Mt. Mowbullan
144 475	VK1RTA — Canberra
144 500	VK6RTW — Albany
144.700	VK3RTG — Vermont
144.800	VK8VF — Mt. Lofty
144.900	VK7RTX — Ulverstone
145.000	VK6RTV — Perth
145.100	ZL1VHF — Auckland
145.150	ZL1VHW — Waikato
145.200	ZL2VHF — Wellington
145 250	ZL2VHP — Palmerston North
145.300	ZL3VHF — Christchurch
145 400	ZL4VHF — Dunedin
432.400	VK4RBB — Brisbane
432 450	VK3RPX — Ballarat
432.475	VK7RTW — Ulverstone

Additionally, the following may be operating:

50.013	WB6KAP — California
50.100	5W1AB — Samoa

*Not really sure whether these beacons are actually on the air, but they have been known to operate and with the DX prospects being so good they may now be operating. †HL9WI did operate on this frequency as well at one time.

There have been some favourable comments on the present method of listing the beacons, so it will be continued for the time being. I make no apologies for including overseas beacons, many have already been heard in VK and the remainder could be also before long. While on this point "Break-in" for October 1978 carried a table of monthly smoothed sunspot numbers using the modified Ohl (Russian) method for Cycle 21. A few excerpts are Feb. 1976 64.4, July 78 89.5, Oct. 78 99.7, Jan 1979 110.8, July 79 131.1, Dec. 79 148.1, Feb 1980 153.4, May 80 153.6 (peak), Dec. 80 141.2, June 1981 126.2, Dec 81 120.6, etc. The Feb. 1976 prediction was 64.4 but the level actually reached was 90, with nearly two years to go! So it looks as though there could be almost unlimited DX possibilities, with any VHF services suffering interference, whilst point to point HF communications will face considerable disruption.

WHAT'S HAPPENED SINCE 26-9-78?

WHERE? SIX METRES, OF COURSE

As David VK5KK has more opportunities of operating on the air than I do, I have asked him to give an outline of what has transpired on the VHF bands, six metres in particular, during the period 26-9-78 to about the end of 1978. I present the information in David's own style.

"One of those solar flare things again on 29-9-78. KH6EQI 5 x 9+ at 0845Z to 0930Z. Auroral propagation 0700 to 1430Z. Noted Darrell VK3AQR on 144 MHz at 0840Z. VK3AZY/P with IC502 plus 20 watts to 3 element car mounted yagi at 5 x 6! on 52.05, same time VK7ZAH 5 x 5 and heard VK7DA (both on 144.1 MHz). All attempts at higher frequencies unsuccessful JAs 1 to 6 from 1215Z. Worst signal report 5 x 7 30-9: JAs 1 to 6, 1000Z averaging 5 x 5 for 1 hour, plus VK4s to 1330Z.

"1-10: One JA1, 5 x 9! JAs heard every day on 50 MHz from 1-10 to 11-10 plus JAs daytime on 52 MHz on 3, 5, 6, 9, 10 from 0330 to 0600Z (P.S. Our 16 foot rotating section with 6 on top fell over on 2-10!) 12-10: Large JA opening from 1215 to 1330Z (1 to 6 areas). Antennae down to 14-10 when stacked 8/8 erected. 15-10 Large JA opening 1222Z onwards (1 to 3) plus KH6EQI 5 x 5 0900Z 16-10. Worked KH6EQI and KH6HI 0950Z and 1012Z. First heard calling VK2YDY before contact made, dropped out 1120Z, signals both ways 5 x 9. Note the beacon is 80 watts to 6 element. Large JA opening 1212 to 1330Z. (Note: KH6 stations worked 2 MHz split frequency.)

"From 17-10 to 3-11 at least one JA worked on 52 MHz each day, best days 17, 20, 22, 24, 25, 26, 27, 29 and 3-11. KH6EQI heard 25-10 5 x 5 at 1330Z by VK5AVQ. Some JAs appearing at 1000Z which is early for this longitude. (They should be earlier in the Eastern States.) Average time 0200 to 0600Z. From 3-11 to 9-11 no 52 MHz activity but nearly every day something turned up on 50 MHz. On 2-11 KH6EQI to 5 x 3 at 0730Z.

"Large JA opening 12-11 1130 to 1210Z plus KA2 and KA6. This one was watched by the rising 30 to 50 MHz monitoring method and worked in like clockwork with the daytime opening 14-11: JAs on 50 MHz. 16-11 Enormous JA opening from 0230 to 0815Z, only a period of 2 hours in the middle was quiet. Many signals to 5 x 9. (This is a major reason my present log book has only lasted 9 months!) ZK1AVZ 5 x 9 at 0955Z.

"17-11: JAs 0300 to 0345Z (1, 7, 8 and 9) 18-11, 19-11 and 20-11 JAs on 50 MHz. 20-11, Large JA opening from 0410 to 0540Z with all areas at least 5 x 5 (yes, 0 to 9 inclusive!) 21-11 and 22-11 JAs from 0600 to 0830. By now sporadic E (Es) is becoming more common but not good. Areas VK1 to 8. 23-11: JAs 0300 to 0330Z then from 1155 to 1350Z, a great opening, with 1 to 7 areas with signals to 5 x 9+. 23 to 25-11: JAs on 50 MHz, nothing on 52 MHz again. They disappear until early December. Local DX reasonable with ZL several times.

"5-12: JAs 0300Z, ZL3AAD and ZL3AFZ 5 x 7 0825 to 0900Z 8-12: JAs at 0300Z. At 1630Z VK5ZJG heard KH6EQI 5 x 7 for 20 minutes, and ZL2VHP (beacon) at same time. Recorded at VK5KK on chart recorder same time as confirmation, receiver on 50.102.5 MHz to give 1.5 kHz tone. 7-12: JAs on 50 MHz 0330Z. 9-12: JAs from 0350 to 0440Z to 5 x 9 with VK5CK in the shack on the back-up equipment (FT620 and 5 el. yagi) with me on TS600 and 16 elements from me at the same time. The ultimate in QRM! P29ZNL at 0712Z 5 x 9. KH6EQI at 1610Z for 28 minutes on chart recorder. Next few days good local conditions.

"15-12 3D2CM 52.050 MHz 0153Z at 5 x 3. Dick runs 30 watts to 3 element. He confirmed it is is the first time six metres has been worked to VK since the call area changed from VR2 to 3D2. VK2BYX only other station heard working afterwards, though several foolishly calling on top of him after hearing Phil VK2YDY working him, but not being able to hear the 3D2 themselves. No matter WHO you are you have to hear them to work them! Rumours spread that some other VK2s worked 3D2CM at the time but nothing other than that. It is definitely known that at least two heard him on CW but did not read the call to realise who it was until told later. At the same time KH6EQI heard 5 x 1 with deep QSB. JAs from 0410 to 0740Z to 5 x 7 for about 50 minutes.

"16, 17, 18-12: weak JAs on 50 MHz around 0300Z. 19-12: KH6IAA, AI from Hilo worked at 5 x 5 first on 52.110 and finally confirmed on 52.050 at 0330Z. In between times he worked several VK2s. KH6EQI from 0230 to 0415Z. This time the beacon was around when the JAs came through at 0346Z to 0445Z when I travelled to town. They were still there when I returned at 0840 and worked a few more! 20-12: KH6EQI plus VKs 2215 to 2253Z. KH1AA heard on 50 MHz. From 0235 to 0415Z (note close tie-in to previous day) KH6EQI JAs 0400 to 0430Z. P29ZWW 5 x 5 at 0845Z 21-12 ZL3QK, JH, AAD and AQ up to 5 x 9 from 0019 to 0100Z, JAs 0400 to 0440Z. (No KH6EQI, ha, ha.)

"23-12 ZL1AVZ, ZL1BPW and ZL1QI/M and ZL1AVZ/M. The last two were using IC502s and ¼ wave whips with signals to 5 x 5, mobile, 0030 to 0130Z. One mobile drowned out a well known VK3 on back-scatter. JAs at 0400Z also working ZLs, which was good to observe. 27-12 JAs 0300 to 0416Z to 5 x 9. JH7VYN said my signal was hitting the stop on the S metre of his FT620B. I swapped over to my FT620 and 5 element and he said the signal was still 5 x 9++. Looking at the needle this end Kou's 10 watts was murdering my S meter! Such conditions stayed like this for 8 minutes before returning to 5 x 9. All areas.

"31-12 ZL2ARW/P 5 x 9 at 0909Z 1-1-79 JAs 0525 to 0540Z but they got to 51.250 MHz and died back (Drat!) Worked VK8GB 0541Z on 52 MHz, Graham was just back from three weeks holiday 2-1: JAs again on 50 MHz for more than 3 hours on and off, but not reaching 52 MHz. This is something which has happened TOO often! Total number of JA contacts for 1978 stands at 821 and have now qualified for the SMIRK 100 Award. Where were the FK8 and YJ8 areas?

"NOTES Who needs 400 watts PEP? In 1978 most JAs were using 10 watts, also KG6DX. All possible JA call areas worked including JD1 (by VK5RO), and most KAs. All prefixes JA, JD, JE, JF, JG, JH, JI, JK, JL, JR and JJ. Two complete systems are used on 2 metres. (a) TS600 + 400 watts to 2 x 8 elements 18 metres high and (b) FT620 + 100 watts to 5 element 10m high. Antennae are 23m apart and this means it is possible to listen on 50 MHz or to beacons on 52 MHz on either while talking on the other provided both beams are not pointed at each other. Comparisons can be made to determine to what extent signals are high or low angle. It can be revealing and good to find out whether sporadic E is at all responsible for extensions. It has been almost 100 per cent reliable. Also two 38 to 55 MHz monitor receivers are used to watch MUF and paths. These are connected to separate antennae. From this it can be determined by midday whether conditions will prevail to the north in the afternoon. By monitoring 49.75 (Asian TV) on one receiver squelched, and using the other lower to watch the various peaks at the correct times. Night time TEP is very easy to watch and follow up.

"Logging various stations and DF gives an idea of where to look, e.g. during and after the 3D2 contact on 15-12-78 notable was the telemetry station on 48.25 MHz, suspected to be from FK8 or further out. That is one to watch when there is F layer out that way. You might work FO8DR or ZK1AA! Also for KH6 there are a few land mobiles in the 40 MHz region. From the city of all the police serials (Los Angeles) watch 39.82 MHz.

"I am sure that if VK6s can now hear KH6EQI then VK4 is not far away from a repeat of March/April 1968. This equinox coming will be the one! To the north anything from a dozen countries appear, and one simply notes where the signal strengths taper off. (Even on Es it is interesting the number of jungle green bushwalkers with Armalites you can hear!) All this can be upset by solar flares, but here we have a 4 element yagi that can be pointed vertical to monitor ionospheric noise. Depending on the severity auroral propagation can occur although the last three major flares did not give auroras as high as Adelaide.

"Summing up. It is true that for a lot of the DX you have to be on the band at the right time, but I think with a little bit of useful listening you can determine when something could come through. After a while you can pick patterns that generally only have a short term application but are still useful, e.g. watch a distant beacon and you will be surprised just how often it will be heard. Take for instance WA6JRA and TI2NA to VK5. VK5ZBU has heard both once or twice around 1300Z to 1500Z. Signals extremely weak but there. VK5RO has also heard WA6JRA in this time slot. All this occurred from early December to just after the good DX on 20-12. I leave a chart recorder on a frequency on six and two metres at night and when I am not around as part of Project ASERT. Though 2 is sedate, 6 is quite interesting. In future ARs results will be published on the various findings.

of the ASERTS groups in each State. Some people will be surprised to say the least! Please note: Having two 6 metre stations is not greedy, but necessary when you have two call signs in the one shack!

TWO METRES AND ABOVE

David VK5KK continues: "29-9-78 1308Z VK7ZAH 144.1 5 x 5 on aurora. VK7DA heard.

22-11 VK6 opening 144 MHz and 432 MHz both 5 x 9 and VK5NY and VK5KK hearing VK6WG 5 x 2 on 1296.12 MHz. Call signs on lower freq. VK6WG and VK6XY.

"20-12 Sporadic E opening on 2 metres to VK2. VK2ZTH 5 x 9+ 0650Z and VK2YDV 5 x 3 at 0654Z both on 144.1 MHz. VK2WI heard for seven minutes, the complete length of the opening. VK2YHG heard via VK2 channel 8 repeater in Sydney. No use wasting time when this opening occurred. Repeaters and FM nets are vulnerable to pranks. As far as my working is concerned 2 metres consists of SSB/CW only so it's the quick, and the others miss out. Constant monitoring of 2 metres is the only answer and taking note of 88 to 108 MHz FM, and Channel 2 TV (ABN2) fills in. Repeaters are good beacons and as in the last opening to VK1 and VK2 on 31-12-78 it all helped in this case.

"24-12 VK3 on 144 MHz SSB must be extinct in some parts of VK3 when you can hear repeaters halfway across Victoria and no one on 144 MHz, SSB or seemingly prepared to come on! 28-12 28-12 VK3AXV and less than a handful of others seem to be the only activity over the border on 144.

28-12 VK6 on 144, 432, 1296 and 2304 MHz. No real limit on signals and frequency! Stations on VK6WG, VK6KZ/P, VK6SQ/P, VK6ZED/P, VK6BE, VK6XV and VK6JY. NEW WORLD RECORD SET ON 1296 MHz THIS DAY (see separate box). 30-12 and 31-12. Continuation of propagation set on 29-12 plus into VK3. 1-1-79 VK3AXV on 144.1 and VK6 beacon on 144.5 still through.

"5-1 Good signals from VK3AXV and VK3BEH 144.1. VK5RO also had contacts with VK3AUU, VK3AYO, VK3BPH and VK3ANQ, all on 144 MHz. 8-1 Strong signals from northern SA from VK5DJ, VK5NW and VK5NJ. Neville who has only recently come on the air and was good copy from his QTH. Col VK5RO worked across land into Mildura on 144 signals to 5 x 7, working VK3ZST, VK3BER and VK3AUG. Repeated the effort again on the morning of 10-1."

Thank you David, for that comprehensive report on activity from VK5, which indicates that despite being sandwiched in the middle of the Continent we are still getting a very fair share of what is happening. As David's information shows however we would be doing a lot more if we could operate on 50 MHz more than half the six metre openings have been missed as a result of the band opening only as far as 50 MHz and not extending to 52 MHz. And unless something is done about it we will be missing out on a lot of very fine contacts later on into W, VE and other call areas because of this 2 MHz separation.

The comprehensive nature of David's report will allow those who live in other areas of Australia to compare with their own notes and see what opens when and where, and how often.

MORE ON SIX METRES

Pleasing to note Graham VK2ZZV is doing something very useful during his holidays and going out to YJ8 country and installing a beacon there with the call sign YJ8PV and operating on 51.999 MHz and which it is hoped will be able to continue to operate on a 24 hour basis. 10 watts output. The beacon at time of writing has been heard in most States so far after commencing operation on 6-1-79. VK5KK and others worked YJ8KM 0127Z 5 x 7 same day. On 8-1 YJ8ZV worked 5 x 9 also by VK5RO. Beacon in for 3 hours to 0300Z 5 x 1 to 9. On 9-1 received a report KG6DX had worked a VE7 on 50 MHz!

JAs seem to have favoured the southern States during the past two months. Note Hal VK4DO had worked 1357 to 13-11-78, but not a great number since. Many openings into VK7 too, but VK3 seems to be missing out a bit or else no one is on. John VK4ZBJ confirms the Ch. 0 translator is just south of Jandowae, about 200 miles north of Townsville and runs 500 watts. Great place to put a Ch. 0 TV station, right in the heart of sporadic E and TEP territory!

Vladivostock TV on 49.75 a good pointer to likely JA signals on 50 MHz — well worth monitoring when in shack doing nothing. 10-12 Aub VK6XY said boys in Carnarvon working through the Ch. 8 repeater at Busselton, 150 miles south of Perth, so a north south path does exist there at times. Did hear the same day about a 10 GHz contact in VK2 over distance of 180 km, but so far no one has written! 16-12 FK8AA worked by VK3OT, VK3AMK and VK3AKK. 15-12 VK5KK to 3D2CM 5 x 3, only active 3D2 on six at present. Runs 30 watts to 3 element, distance to V5 over 2700 miles. 27-12 FK8AB and FK8AX to VK2ZBD and others. For QSLs to FK8 write care of Box 779, Noumea. 9-1 ZL3QK to VK5KK and VK5AVO.

The last letter from Graham VK6GB was dated 24-11 shortly before he went on holidays. Note that for the period 17-10 to 23-11 only one contact on 144.110, this to JA6SZC at 1220Z on 21-10, which rather indicates as expected a drop off in 2 metre activity during the Es season. JAs on 6 metres however, were worked on 17-10, 21, 24, 25, 27, 28, 29 and 30-10. And on November 2, 4, 9, 10, 11, 12, 13, 16, 18 and 23rd. Considerable contacts were made 11-11, 13-11, 16-11 and 23-11. Graham comments he and Brian VK6VV have had a pretty solid session with JAs for many months and have been taking it a bit quieter! The current thunderstorm activity in Darwin also has a restricting influence! With so much information this time, some pruning has had to be done to all letters received.

Tony VK6BV worked here on 20-12 from his new QTH at Northam from the temporary shack. He worked 26 JAs on 18-11, two on 19-11 and 14 on 20-11. Suffers from heavy power line noise from north at times.

Gary VK2ZGF wrote to say the contacts by VK2BXT and VK2YDV with KH6EQI in October were preceded by contacts by Gary and at least two other N.S.W. stations with KH6EQI on 22-4-78, which would thus appear to have been the first into VK2 from that area for probably 20 years. Thanks for writing Gary, it sets the record straight.

FROM OVERSEAS

Ray K5ZMS of SM1RK sends a short note to say much British and French TV has been monitored on the East coast of U.S.A., and that ZB2BL had worked PY2XB for another European to South American contact.

It is with regret I record the passing of Sam Harris, W8UKS/W1FZJ/W1BU, on 5th November, 1978. Sam Harris was one of the truly greats of Amateur Radio. He built antennae by the hundreds, after joining the ranks of VHF activity in the 1940s. He compiled VHF notes for both QST and CQ for several years. He was a prime mover in the first EME contacts, and his first column in QST for September 1960 featured information regarding the almost unbelievable contact via EME on 1296 MHz, a milestone in time. He was associated with radio astronomy equipment. He thus became a legend in his own time. He is survived by his wife W1HOY, son W1HIV and daughter.

VIA THE REPEATERS

Ian VK5IK has written from Eudunda for the first time outlining the great coverage which is possible at times via various repeaters. I do not normally include much information about repeaters, as I feel as a rule 2 metres in either SSB, CW or FM simplex. However in this case the very wide coverage is interesting, but further emphasises the point made by David VK5KK that with so much repeater activity, where are the SSB stations from the same areas? Surely one mode of contact must lead to another — where are all the 3s?

"Good 2 metre opening to the east on the evening of 1st and morning of 2nd January 1979. VK3RWZ audible most of evening. VK3BYL audible on direct path into VK3RWZ and also on Ch. 40. From 1230Z VK3RAM Ch. 4 and VK3RGL Ch. 8 plus VK3RBA Ch. 3 heard and accessed. An hour later very strong signals from VK3RGL Ch. 8 and VK3RMA Ch. 8, than from 2200Z VK3RNE Ch. 8, and VK3RGL and VK3RMA were still strong. VK3RWZ and VK1RGI Ch. 7 were extremely strong, and worked VK1DA and VK1ZAH through VK1RGI. VK3TN was heard on the direct path into VK3RWZ. VK3RSH strong on Ch. 6, but all quiet by mid-day (0130Z) on 2-1. Heard from David VK3YNB that the VK3RML Ch. 2 Melbourne repeater had been disabled by vandalism. Thank you for writing, Ian.

TWO METRES ACROSS THE TASMAN SEA

Great excitement prevailed on the east coast of Australia from Sunday 7-1 through to at least Wednesday 10-1 when many stations in VK2 and VK4 were able to work into New Zealand on 2 metres. First news came to me from Rod VK2BQJ in Sydney, one of my old sparring partners, via a telephone call that he first became aware of the opening about 1400Z on Sunday 7-1, when he observed New Zealand repeaters peaking to 5 x 9+. Rod worked 12 stations at that time, with ZL1TAB, ZL1AVZ on SSB. Others were worked either via New Zealand repeaters or direct on FM. One problem is that ZL repeaters work 700 kHz down in frequency with 12.5 kHz deviation. Unless you have two pieces of equipment you have some problems working through their repeaters.

VK2YCJ was reported as having worked up to 80 ZLs via repeaters. Appears there are few stations with high power SSB, which seemed at that time to be essential for good contacts. Still continuing through to Tuesday 9-1 a.m. local time.

A further message received on Wednesday 10-1 indicates conditions still prevailing, with signals stronger than ever, massive signals from the repeaters, and stations being worked across the Tasman using ½ wave whips, etc.

Phone call from Martin VK4ZIL on the Gold Coast 60 miles south of Brisbane, indicated they had been in on the conditions as well. At the time of phoning he had worked ZL1THG who was running 10 watts at 4 x 1. Also worked ZL2TFY. First heard via the Gold Coast repeater on Ch. 2 at 0730Z. Martin also reported hearing a ZL3. Both beacons on 148.100 and 145.150 had been heard. Martin mentioned it appeared signals were somewhat stronger in Brisbane, where some stations had apparently been worked on 144.1 SSB.

432 MHz ACROSS THE TASMAN

A further message from Rod VK2BQJ indicated he had been successful in bridging the space between Australia and New Zealand for the first two way contact on 432 MHz with ZL1TAB on Tuesday 9-1-79 at 0851Z with signals 5 x 5 both ways. Contact had been maintained for about 1½ hours. On 10/1 a one way contact had been made when Rod heard ZL2TAL but he was unable to copy Rod.

Congratulations to you, Rod, for your effort, you can now move into the records for a 432 MHz contact from VK2 over the greatest distance for the first VK to another country contact on 432 MHz. You cannot however at this stage anyway claim the Australian and World record for 432 MHz as the contact between VK6XY and VK3ZQV set on 22-2-78 still stands!

COMMENT

If nothing else comes out of these outstanding contacts on 144 and 432 MHz, it must surely confirm what I have been hammering in this column on and off for years that I could never understand why more attempts were not made to work VK4/ZL-VK on those two bands. If one can believe what has been written in "Break-In" there are plenty of two metre stations in ZL but they seem to have resolutely refused to look toward VK. And probably as many in VK2 have refused to look east too. I even heard it said once that New Zealand amateurs only constructed their beams to rotate north and south. That may have been an unkind statement but one could have been excused for thinking so.

The next move therefore, is for a general upgrading of antennae on both sides of the Tasman, some more linears after the IC202s, and some more time looking at the weather patterns, hence more contacts. Who will be the first to work all ZL areas on 432 MHz?

ALICE SPRINGS REPEATER

The Central Australian Repeater VK8RCA is now operational on Channel 8, running 19 watts output from a coaxial dipole antenna. It is presently located at the High School, with a good coverage north and south. Ultimately it is hoped to get it up on the ranges around the town for improved coverage. This news comes from Peter VK8CA and it is good news, too. At last we will have a 2 metre signal emanating from the Northern Territory so improving the chances of someone working that

State on 144 MHz. Obvious method would be to first hear the repeater, then switch to simplex FM or for best results SSB or CW on 144. Incidentally, Bill VK8GU built the cavities for the repeater, and Peter VK8CA and Geoff VK8GF were involved in the general construction. Antenna is presently 50 feet high.

I'VE BEEN INVESTIGATED

That's right, an officer of P & T requested permission to come to my shack early in December 1978 to search my log book to see if I had been operating with illegal contacts on 50 MHz! Apparently P & T had read in an overseas publication where I had a contact with JE1HYR on 16th April 1978 on 50.053 MHz! Disappointingly for the Department, I did work JE1HYR and several other JAs that day, but all on 52.108 MHz, which is shown in the log book and without any alterations either. The investigating officer was very pleasant, and I have no axes to grind over the interview, particularly as I was in the clear and told him so before he travelled the 40 km to my shack.

I asked for a copy of the alleged report and was advised it would need to be obtained from Central Office in Melbourne. Typically, so far it has not arrived. But I have followed up the matter myself and with the aid of a good friend in Melbourne have obtained a copy of what is probably causing the interest at P & T level. It comes from the June 1978 issue of the Japanese CQ magazine which has printed a whole table of stations and frequencies for the 50 and 52 MHz [redacted].

On 16th April 1978 there was a tremendous opening to Japan and stations from VK2, 3, 4, 5, 6 and 8 were contacting Japanese stations and the table gives a selection of those stations. Whilst the rest of Australia were working on 52 MHz to Japan, I and two other VKs were supposed to be working them on 50 MHz! Strange indeed. The listed contact before mine with JE1HYR was by VK6ZEL, to JE1HYR on 52 MHz, then JE1HYR apparently changed to 50 MHz to work me, so the listing says, then presumably went back to 52 MHz. QSL cards received as a result of those contacts on that day including some from SWLs show I was operating on 52 MHz.

For those of you who have worked Japanese stations and received their QSLs will note that many stations send a pre-printed card with 50 MHz already on it, even though contacts are made on 52 MHz. Others will call the band 50 MHz in line with their allocation. Some will say 52 MHz band, others will give a specific 52 MHz frequency. That's exactly what this large listing of stations has done, there are 50 MHz, and 52 MHz band contacts, also specific frequencies listed on 50 MHz for U.S.A. or other similar areas, also specific frequencies on 52 MHz to Australian stations.

The actual investigation doesn't worry me, particularly as my nose was clean! What I am concerned about is that P & T, in these days of alleged staff shortages and financial worries, can find time to have an officer in another State investigate a triviality, something so vaguely based as a chart in an overseas publication, whilst seemingly ignoring the proliferation of out of band operation by non-licensed operators using CB type equipment. I have no bones to pick with responsible CB operators, but those who operate up to 27.7 MHz, in the 28 MHz band and on 146 MHz are getting away with it because "they are unlicensed, difficult to trace, and so many of them!" So the normally law abiding amateurs, because they are licensed, addresses known, can be made the subject of witch hunts.

And supposing say half a dozen amteurs did operate 50 MHz for a brief period. Did they create QRM like the thousands of other illegal operators previously mentioned? I don't condone out of band operation, and still say amateurs should stay within their prescribed bands whilst we continue to fight the stubborness and red tape of P & T. We can only operate today on our exclusive band of 52 to 54 MHz on a non-interference basis, there are no sound reasons for P & T not to move with the times and permit amateurs to operate on 50 MHz in a like manner. Even some concessions to either allow a brief contact to be made on 50 MHz with an overseas station or permit an Australian station to go down to 50 MHz and invite an overseas station to come up to 52 MHz would help to overcome witch hunts. I am sure P & T would find amateurs in general would continue to operate within the regulations if even temporary concessions could be made in regard to 50 MHz operation during the peak of the present sunspot cycle. If temporary permission say for the next three years was made to so operate whilst an in-depth study was made of the whole position would suffice to keep harmony for now.

What about it P & T? Let the amateurs operate on 50 MHz on a non-interference basis in the following way: (1) To call an OVERSEAS station on 50 MHz with a view to making a contact on 52 MHz and (2) allowing a contact to be made on 50 MHz with an OVERSEAS station. Either option to be available to the Australian amateur. And we need the concession now, not in two or three years time when conditions will be on the wane.

In the meantime, I urge Australian amateurs to confine themselves to 52 MHz knowing that many overseas countries know we are there and may look for us. Whether you take the chance to go down and call an overseas station up to 52 MHz is up to you, I can't stop that, but you will now know P & T will be looking for you as you are easier prey than illegal operators on other frequencies, and the number of citations made by P & T on paper will look good for those who assess the results of investigators.

Just to finish on a more pleasant note, you will be interested to know John VK5ZBU heard KH6EQI on 50.104 MHz at 0450Z on 11-1 at S1, whilst at the same time the beacon YJ8PV was S7 for about half an hour. And no VKs were heard operating on 50 MHz either!

"Closing with the thought for the month: "People who jump to conclusions often frighten the best ones away".

73, The Voice in the Hills.

Australia-New Zealand Two Metre Opening — January 1979

The opening commenced in the early afternoon of Sunday 7th of January and continued till Thursday, 11th January. During the course of the opening an almost stationary high pressure with widely spaced isobaric lines whose centre was in the centre of the Tasman and stretched over the East Coast of Australia, the North Island of New Zealand and up into the South Pacific as far as the New Hebrides. During this period, both Australia and New Zealand were experiencing above normal temperatures.

One of the first stations to discover the opening was John VK2AYC who, when he attempted to make contact, was treated with disbelief.

During the early stages of the opening, VK stations close to the coast were at an advantage over stations further inland. The opening appeared to be from Ulladulla in the south to Coffs Harbour in the north, and over the entire top half of the New Zealand North Island. As the days of the opening progressed, the area of the opening spread to include Brisbane on this side of the Tasman and the whole of the North Island plus Blenheim and Nelson in the South Island.

Among the more successful stations were Jamie VK2YCJ operating portable on the cliff tops near Newcastle (228 contacts) and John VK2BTQ at Ulladulla (200 plus contacts).

Operation was all modes FM simplex, FM repeater into the ZL repeaters and SSB, some ZLs succeeded in operating into the Australian repeaters mainly 3 and 6. The Mt Glorious repeater in Brisbane much to the delight of the VK4s.

The most successful ZL appeared to be ZL1TAB with his long yagi on a 37 foot boom. Not only was he in the forefront of the 2 metre ZL operators but was also successful in conjunction with Rod VK2BQJ in having a 1½ hour contact with sideband on 432.1 MHz.

Although this is not an Australian record, it does break the current ZL record of 630 km set in 1971. The approximate distance for this contact was 1395 miles (2230.4 km).

Despite the non-compatibility of the repeater systems (600 kHz against 700 kHz and opposite input/output frequencies) and different simplex channels, it did not take the boys long to improvise. Our simplex channels 40, 50, 51, were soon alive with VK/ZL QSOs.

Signals varied between S5 and S9+. The opening was at times quite selective with stations only a few miles apart being unable to hear stations at the other end in a particular location but able to copy another station 40 or 50 miles away. A report was received that Graham VK2ZZV, operating as YJ8ZV, was heard working ZLs from Port Vila in the New Hebrides, this is yet to be confirmed. Geoff VK2BGF at Taree worked a ZL both using hand helds on simplex with R5 all the way.

At the same time as the opening across the Tasman, the conditions in both N.S.W. and in N.Z. for long range repeater operation was at a peak.

Although this is not the only known opening, this is probably the longest duration that is known of in recent times.

Phil Card VK2ZBX

See Over — Chart and Photo.

1296MHz Record Contact

On 29-12-78 a world record contact was made on 1296.3 MHz between Wal VK6KZ/P and Chris VK5MC at 1230Z over a distance of 2109 km or 1310 miles. Signals 559 both ways.

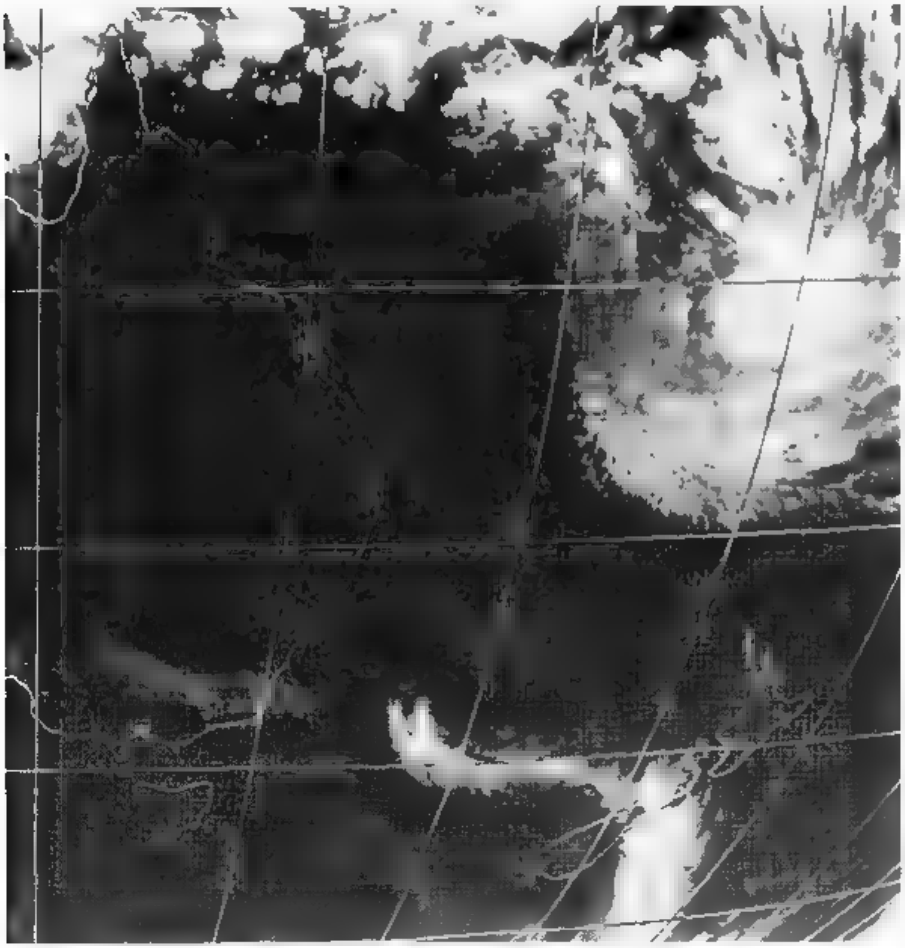
VK6KZ/P was located at Walpole, west of Albany, at a Lat. south of 35 degrees 1.24, Long. 116 deg. 53.24. Receiving set-up: 2 x BFR91 pre-amp to Microwave Modules transverter to FT101E at 28 MHz IF. Three foot horizontally polarized car mounted dish. Transmitter: FT101E to MM transverter to 432 MHz, 10 watt output to varactor tripler, output 3W.

VK5MC was located at Hatherleigh near Millicent, Lat. south 37 degrees 28.55, Long. 140 degrees 15.06. Receiving converter to Drake R4C receiver. Antenna 28 foot dish intended for EME. Transmitter: 432 MHz driver to 3CX100A5 tripler, about 10 watts output.

Also on 29-12-78 at 1320Z David VK5KK at Waikerie worked Wal VK6KZ/P on 1296.093 MHz with signals 559. Distance 2024 km or 1258 miles. David used an MRF902 pre-amp to a Microwave Modules 144 MHz IF converter to a low noise 144/28 MHz converter to Drake 2B receiver. Antenna a one metre dish with circular horn feed 11 metres high, coax loss measured at 2.5 dB, ERP about 35 watts. Transmitter: Homebrew 432 MHz equipment (28 MHz IF) to varactor tripler with 1.1 watts output.

It should be noted both these contacts are over a longer distance than the previous record of 1170 miles. Power levels used were typically low, once again demonstrating the fantastic path which exists across the southern coastline of Australia. Some five VK5s and three VK6s have participated in 1296 MHz two way contacts. Until now no one had added any distance to the previous record.

Synoptic Chart 2100Z, 8th and 9th January 1979, showing stationary high pressure area which caused VHF/UHF opening.



Satellite infra-red photo showing high cloud associated with fronts and cyclone on 7th January 1979, 2100Z.

Chart and satellite photo supplied by courtesy of Bureau of Meteorology, P O Box 1289K, Melbourne 3001

TRANS-EQUATORIAL PROPAGATION

Tests have been carried out between Southern Africa and the Mediterranean Region of Europe on both 50 MHz and 144 MHz.

The results have been encouraging particularly on 144 MHz where several contacts have taken place.

Transmitter powers of 100 watts to 250 watts have been used with antennae of from 9 to 48 elements.

Tests are continuing particularly during the equinoxes and contacts between ZE2JV in Rhodesia and 5B4WR in Cyprus and SV1AB SV1CS and SV1DH in Greece have taken place.

Six metre tests are hampered by the non-availability of 50 MHz in Europe. Some preliminary moves have been made to obtain a segment and listening tests are being carried out.

This information has been extracted from a very interesting article in Short Wave Magazine for August 1978. ■

Serge F6SH with the 50 MHz array used in TEP and Trans-Atlantic tests. From Lannion, France.

JARL plaque presented to VK8GB — see Cover photo.

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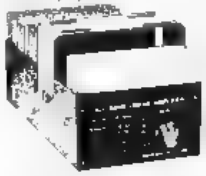

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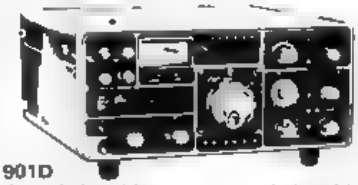

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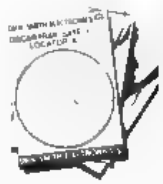

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DS-1A DC-DC converter	$75
DK-520 adaptor for DG-5 to TS-520 use	$20
LF-30A low pass anti-TVI filter	$30
VFO-820 external VFO for TS-820S	$185
VFO-520S external VFO for TS-520S	$160
SP-820 external speaker for TS-820S	$60
SP-520 external speaker for TS-520S	$30
YG-88C CW filter for TS-820S	$55
YG-3395C CW filter for TS-520S	$55
MC-10 hand held microphone	$20
MC-50 desk microphone	$45
HC-2 Ham clock	$35
SM-220 Station monitor	POA
BS-5 (TS-520S) & BS-8 (TS-820S) pan adaptors for SM-220	$65
TS-120V 12V DC mobile transceiver with NB, VOX, IF Shift & digital readout, 30W PEP	$600

NOVICE SPECIALS: Still available at these low prices

Transceivers for 10M coverage, AM/USB, 15W PEP:

(a) SIDEBAND SE-502 240V AC/12V DC w/inbuilt SWR/RF meter 28.3-28.6 MHz $150

(b) UNIVERSE 224M 12V DC 24 ch. 28.480-28.595 in 5 KHz steps Clarifier operates on both transmit & receive $125

Set of Crystals for Amateur license holders for converting 23 ch. 27MHz CB units to 28MHz, suitable SIDEBAND, UNIVERSE, KRACO, HY-GAIN etc. SSB/AM units:

Sets of 8 crystals converts to 28.480-28.595MHz . $40

SUNDRIES:

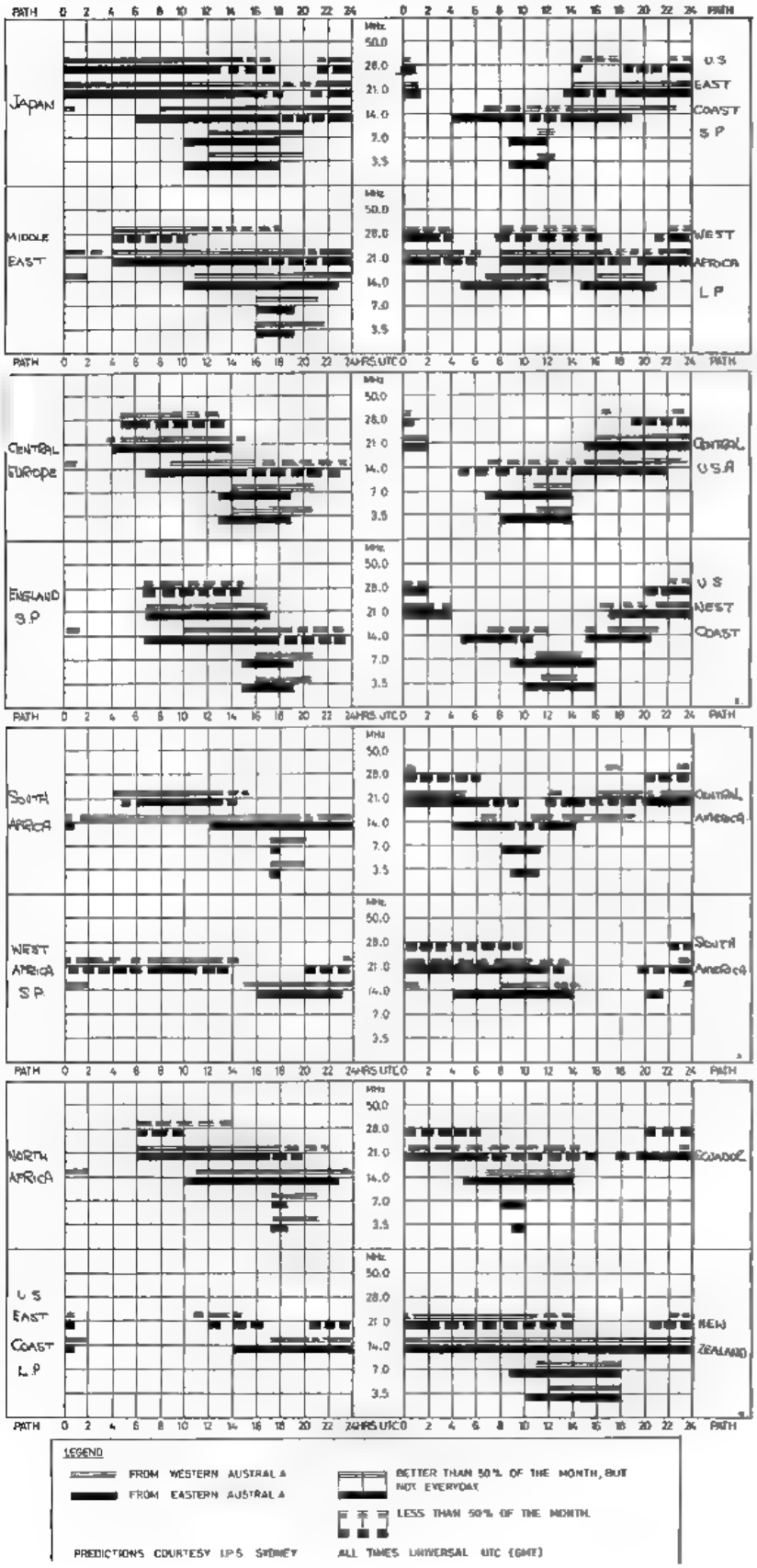
FRG-7 .5-30MHz General coverage receiver	$350
FT-7 10-80M 12V DC transceiver	$525
ICOM IC-202 2M SSB portable transceiver	$175

All prices quoted are net, ex Springwood NSW, cash with order, subject to change without prior notice. All risk insurance is free: freight by air, road, rail or post at cost. All orders cleared on a 24 hour basis after receipt with payment.

Arie Bles (VK2AVA) Proprietor **Roy Lopez (VK2BRL) Manager**

IONOSPHERIC PREDICTIONS

Len Poynter VK3ZGP/NAC



MAGPUBS

Members interested in overseas publications should please note constant changes in prices which are of course also affected by exchange rates. Overseas magazines are always posted direct to you from suppliers, so please allow about 3 months for transit delays

1 yr.	$A.
QST	13.90
CQ	8.00
Ham Radio	15.50
Radio Communications*	14.25
CQ-TV*	4.50
Break-In	11.00
VHF Communications	7.20 (Air Mail $10.40)

*Please ask for membership form beforehand

- **BACK ISSUES** of VHF Communications are normally available from stock except 1966 issues which are out of print. Single copies are $1.10 each to 1974, $1.40 each from 1975, $1.70 for 1977 and $1.80 for 1978 (average weight of each a 90g); VHF Communications binders to take 12 issues are $2.75 each and weigh 250g
- **BACK ISSUES** of other magazines are not available but sometimes can be obtained against special order
- **BACK ISSUES** of Amateur Radio are available to members. Some issues are out of print however issues March to May 1972 at 30c each. June '73 to Dec. 74 at 40c each, Jan-Oct '74 at 50c each. Nov 74-Aug '75 at 70c each, Sept '75 onwards at 90c each. Calculate average weight as 120g per issue.
- **AMATEUR RADIO** is available on overseas subscription at $10.80 for 1979. It is also available at this rate for libraries and organisations such as Government Departments, Schools, etc. All these are post paid by surface mail.

  For overseas subscriptions please enquire about extra cost for air mail. As an indication of rates — extra for Air Mail to PNG is $10.00 for a full year
- Recruiting leaflets "8000" are supplied free of charge.
- **OTHER ITEMS** are also normally available from stock. These include —
  - Membership Badges (specify full or associate lapel or stick-pin) $2.00*
  - Overseas DX & USA Call Books, NZART Call Books and many many other interesting items — **please send for lists.**

  *Post Paid

Except for magazine subscriptions all other items are normally available from **YOUR DIVISION.** To save on postages and packing, it is better to enquire there first if you live in capital cities

Always please add extra for postage and packing except on current magazine subscriptions or where prices are stated as including postage

MAGPUBS

A WIA MEMBERSHIP SERVICE
P.O. BOX 150, TOORAK, VIC. 3142

AWARDS COLUMN

Brian Austin, VK5CA

P.O. Box 7A, Crafers SA, 5152

CURRENT MEMBERSHIP OF THE AUSTRALIAN DXCC AS AT 31.12.78:

PHONE

VK6RU	327/359	6TW	121/123
5MS	324/356	4NQ	120/124
4KS	324/341	4AAU	120/121
6MK	316/342	6IH	120/120
3AHO	304/326	4LZ	119/123
6LK	304/310	3IP	118/122
4UC	301/308	4UA	118/120
2APK	300/313	3BBA	117/121
4FJ	297/324	3BHN	116/116
4PX	297/304	6DR	115/118
5AB	295/318	2AZY	115/117
4RF	289/293	5EF	114/119
7DK	286/292	1AOP	113/118
2AAK	274/281	2YO	110/110
3ACD	273/281	2ZA	109/112
2AHH	265/280	3WT	109/109
2SG	265/271	2EB	108/110
3TL	264/277	3BGY	108/110
3JF	263/286	6NCZ	107/107
3AMK	258/265	3DF	106/109
4DO	257/274	5WU	105/105
4AK	256/256	3AYF	104/106
4VC	255/264	3LC	103/107
4CZ	255/258	5ZB	103/107
3VK	252/256	2SK	103/104
5LC	250/254	3GI	103/104
5WV	248/253	5PR	103/103
4VU	233/234	3WV	103/103
3HL	229/240	5KP	102/106
5RX	226/226	9WD	102/106
6CW	220/224	3NM	102/102
3ALM	217/221	4AWR	102/102
3SM	203/210	6BV	102/102
3TG	196/208	3XD	101/104
4XJ	192/200	4ZK/8	101/104
5BB	188/193	3SO	100/104
5QI	188/190	5QB	100/103
2AML	178/181	5WY	100/103
6KK	174/178	3HE	100/102
7LZ	173/184	4JS	100/102
7CI	163/166	3DU	100/100
3ZD	162/166	3AGB	100/100
4PJ	150/153	3AUL	100/100
1VP	148/152	4YB	100/100
6HE	148/150	3AKZ	99/105
2APW	148/148	2AXI	99/103
3SX	143/148	2GV	99/102
3LM	139/143	3ADO	99/102
2AGO	137/142	2KK	98/101
4SD	131/134	3CR	98/101
7JV	127/130	3WW	98/101
4OA	126/130	2NM	97/100
3QV	125/127	2AMU	95/103
3ZY	121/125		

CW

VK2EO	317/348	3AXK	200/218
2QL	310/339	4SD	187/206
3AHQ	308/331	4UC	172/178
3YL	302/325	5BO	163/181
4FJ	297/329	3AX	149/162
2APK	291/304	4XJ	147157
3XB	280/300	2QK	142/146
4RF	271/288	2SG	139/147
3NC	268/297	2AHH	137/150
6RL	267/296	4KS	130/138
4KX	261/266	3SR	127/133
3YD	258/281	3LV	122/126
3TL	248/260	3HL	116/121
3RJ	245/265	5XK	144/122
3KS	243/254	4PX	104/112
5RX	223/236	4LV	103/105
3JF	206/219	2GR	101/105
7LZ	203/229	8HA	97/101
4DO	202/224		

OPEN

VK6RU	327/359	3AXQ	130/134
4KS	325/349	2AXK	129/136
4SD	318/339	3LV	127 131
6MK	315/342	4EZ	127/131
2VN	311/336	6JK	135/136
2APK	311/329	6TW	125/127
4FJ	309/341	2AFA	124/127
3AHO	304/326	4LZ	120/124
4PX	304/315	1AOP	117/122
4UC	304/310	8KP	116/121
3YL	303/326	5EF	114/119
4RF	302/319	4DV	111/115
2SG	301/317	9TB	110 114
5RX	298/301	3ABA	108/115
3XB	286/306	3YS	107/121
3JF	281/293	6FI	107/107
3TL	280/293	5FY	105/112
2AHH	273/292	5EJ	105/108
3ACD	273/282	4UG	105/106
3NC	269/298	3PR	105/105
4DO	265/289	3AUT	105/105
4KX	265 270	6MA	105/105
3JA	262/289	3SO	104 108
4AK	259/261	3XD	104/107
3AMK	256/265	4YG	104/104
3HL	253/266	2AFG	103/103
3KS	243/254	3NAC	102/102
7LZ	233/259	9AP	102/102
4XJ	223/234	9BA	101/104
5QI	206/209	3AUL	101/101
7BC	205/206	2PA	100/112
2BC	197 200	2PF	98 103
6KK	191/197	2BRK	98/103
4BG	188/196	2AND	98/102
6HD	186/191	1QL	98/100
3HE	170/175	4JI	97/100
3SX	151/157	4QF	96/100
3QV	141/145	3ACS	93/101
4NQ	132/136		

The first group of figures represents the total number of current countries, the second includes those countries which have been deleted.

The order is determined by the number of current countries worked, if two stations have the same number worked, then it goes on the second group of figures, and if this is identical then it goes on the States in numerical order

THE WESTERN KEYBASHER'S AWARD OF PERSEVERANCE -

Barry Ross VK6IF
(Secretary, AARTG)

The Western Keybashers Award of Perseverance is offered to all Amateur or Short Wave Listeners who have contacted, or in the case of SWLs printed, 10 Western Australian amateurs on RTTY on any band. It is hoped to encourage the seeking of VK6 amateurs by other states and possibly other countries. Also available will be various endorsements such as all on one band. QRP working etc.

Conditions will be.—

1. Contacts with all WA amateurs with either Full or "2" calls are permitted.
2. The only mode permitted is RTTY
3. Only one (1) contact per WA station is allowed to count towards the Award.
4. All contacts must be two way RTTY contact except for the SWL class.
5. All contacts must be listed showing date, time and frequency and should be verified by one other amateur who should sign the log as well QSL cards should not be sent.
6. All contacts after the 1st of July 1978 are eligible.
7. Cross band or cross-mode contacts are not countable.
8. A fee of $1.00 should be enclosed to cover postage etc.
9. Members of the AARTG are permitted to apply for the award.

RTTY contacts are not so easy to come by as phone or CW contacts so to work 10 WA amateurs should require some persistence on the part of the other station. All enquiries should be made to the Secretary, Australian Amateur Radio Teleprinter Group, G.P.O. Box N1002, Perth, 6001, W.A.

From AARTG Quarterly Newsletter No. 11

HMS BELFAST IMPERIAL WAR MUSEUM
Issue of Special Amateur Radio Callsign

The amateur radio station aboard HMS Belfast moored in the Pool of London, between Tower Bridge and London Bridge, has been granted the use of the special callsign GB2RN for use when the ship is open to the public. Summer hours 1100 to 1800, winter hours 1100 to 1630, all times British local time. The station is interested in establishing schedules with other museum and special interest stations worldwide, these and other stations requiring skeds, please contact G3HZL, Don Walmsley, 153 Worple Road, Isleworth, Middlesex, TW7 7HT, England

All HF bands from 1.8 to 28 MHz are covered, CW or SSB, it is hoped to have RTTY in the near future. G4HMS will be operational outside of the stated hours.

RNAS MERCURY AWARD

For contacts with member stations of the RNARS on a points basis, one point per station per band, double points for contacts above 30 MHz

Special stations count double points, G3BZU, GB2RN, GB3RN, GB3RM GB3FAA, GB3HMS GB3GUZ, GB3RNR

Award is issued in three classes. CLASS ONE — 20 points, CLASS TWO — 10 points, not available to UK stations. CLASS THREE — 5 points, not available to UK or Europe. Endorsements for AOB or mode, plus extra 10 points. Applications with £0.30 sterling or 6 IRC to Award Manager G3HZL, 153 Worple Road, Isleworth, Middx TW7 7HT, England. Certified log data only no QSLs required, award available to SWLs. ■

BOOK REVIEW

1000 Questions for Novice Licence Candidates by Ken Hargreaves VK2AKH, Dave Wilson VK2ZCA/NMW, Rex Black VK2YA.

This book consists of 1000 questions of the multiple choice type complete with answers. The questions cover both theory and regulations for the novice licence.

The book is intended to give intending novices an idea of the sort of questions which they will encounter in the exam. This is very necessary and must be met by a book such as this one because P&T do not provide old exam papers.

The book goes a long way to meeting the needs of novice candidates and their instructors for a ready source of typical questions. Indeed the compilation and checking of such a work is a daunting task. The authors deserve credit for tackling the job and carrying it out so well.

There are some typographical and other errors but they are a very small percentage and say a lot for the care and hard work that have gone into the book.

Those novice candidates and novice course instructors requiring a copy or copies should write to —

W.A.N.S.W. Education Service
P.O. Box 109
Toongabbie NSW 2146

The price is $3 each with special arrangements for class purchases.

Also available from the above address are a range of texts and morse tapes at very attractive prices so send an SASE for details ■

FROM THE OVERSEAS ADS

The new linears are all falling in line with the American FCC requirements and 10 metres seems to have all but disappeared from the linear band-switch.

Dentron have a new DTR2000L using an Eimac 8877 valve and covering 160 metres to 15 metres. A nice looking unit. Henry Radio have brought out their 1KD5 which uses the Eimac 3-500Z triode. This model is more compatible with Australian power limits. Also 10 metres is included on their export models.

Swan have announced their 100 Mx transceiver which is a small transceiver with a very neat appearance. It is complemented by a matching AC power supply and an antenna tuner.

Ten Tec have released a neat new transceiver in their OMNI model with either a digital or an analog dial. Looks like all the new solid state transceivers have abandoned integral antenna matching. That outboard antenna tuner is a bit of a step back with two handed band switching. The old tune and load controls did give a bit of leeway for other than 50.00 ohms and zero reactance feedlines. After all most aerials aren't that good.

Well that brings us to aerials and Hygain have got back in with a range of 5 element monobanders. For 20 metres the 205 BA, for 15 metres the 155 BA, and for 10 metres the 105 BA. Should be most impressive. From F9FT come the Tonna range of 144 MHz and 432 MHz yagis which combine high performance with low weight and wind load. KLM are anticipating WARC79 with a range of log periodicals. ■

20 YEARS AGO

Ron Fisher, VK3OM

[illegible]

March 1959 brought two important events, one Federal and one State. The Silver Anniversary Convention of the WIA was working hard to prepare the brief for the forthcoming ITU conference at Geneva. It appeared that there would be enough finance to send our own delegate, and liaison had been taking place between the Institute and other major radio societies of the world so that a common policy for the Amateur Service might be achieved. In Victoria, a new home had been found for the WIA at 478 Victoria Parade, East Melbourne. March 1959 issue of Amateur Radio described the new property and also traced the history of the various locations that the Institute had been housed in.

Technical articles for March included: "AC Power Supply for the No. 22 Set". C. S. Rann VK3AAK described his heavy duty 12 volt DC power supply to power the popular disposals transceiver. Regulation consisted of a series resistor switched with a relay to reduce the voltage when the current drain reduced on receive.

Les Jenkins VK3ZCN described a simple noise limiter for mobile work. A 6AL5 double diode was shunted across the last IF transformer primary with apparently good results.

A reprint from QST, subtitled "Become a Bridge Expert in one Easy Lesson", showed what an SWR bridge can and cannot do. For those who still consider the SWR meter as the end all for antenna measurements, this would be excellent reading today.

If you have a BC457A under the bench but you are not sure what it is have a look in March 1959 AR. Noel Sinnbeck VK2OU presented a long list of surplus radio gear with a brief description of each.

Note that the new Geloso VFOs had been released. The 4/103 for two metres and the 4/104 for 80 through 10 metres and including the 11 metre band. The two metre model wisely provided for crystal control with the VFO to be used for calling only. I believe thata it drifted somewhat. ■

CONTESTS

Wally Watkins VK2ZNW/NCU
Box 1065, Orange 2800

FEBRUARY

10-11	BERU
10-11	JOHN MOYLE MEMORIAL FIELD DAY
4 and 11	TEN TEN NET QSO PARTY
24-25	FRENCH PHONE CONTEST

MARCH

3-4	ARRL DX PHONE CONTEST
17-18	ARRL DX CW CONTEST
24-25	CQ WW WPX SSB CONTEST
24-26	BARTG RTTY CONTEST

TEN-TEN NET QSO PARTY

0000-2400 GMT February 4 and 11

EXCHANGE

Call, 10X number, ARRL section and name.

CLASSES

Single operator, multi operator and QRP Max. 20 watts PEP output

SCORING

DX contacts 2 points, add 1 point if with 10X number. QRP 2 points plus 2 points with 10X number

Certificate will be awarded to Australian winner. Logs from members only to: Robert C. Mugherini, WA1AKS, P.O. Box 169, Randolph, Mass., 02368. (Full rules from FCM with SASE). ■

COMMONWEALTH CONTEST 1979 "BERU" — RULES

TIME:

1200 GMT Saturday 10th March to
1200 GMT Sunday 11th March.

MODE:

CW only 3.5 to 28 MHz. Call is CQ BERU

Eligible entrants are radio amateurs licensed to operate in British Commonwealth call areas. In our region, Lord Howe VK2, Willis VK9, Christmas VK9, Cocos VK9, Norfolk VK9, Heard VK0, Macquarie VK0, and Australian Antarctica VK0 as well as VK1-VK8 are all separate contest areas.

SCORING:

5 points per contact exchange (RST 001 etc.), 20 bonus points for 1st, 2nd and 3rd contact with each call area other than one's own, on each band. There are 111 areas in all, with G, GW, GO etc. counting as a single area.

LOGS:

Separate logs are required for each band showing columns —

1. Date and time GMT
2. Station worked.
3. No. sent.
4. No. rece[illegible].
5. Band.
6. Leave blank.
7. Contact points claimed.
8. Bonus points.

Each band log should be separately totalled and should include at the end a check list showing areas worked and number of contacts per area. Separate band totals should be added together and the total claimed score entered on a cover sheet giving particulars of station, QTH, equipment, power, antenna and a declaration that the rules and spirit of the contest have been observed.

Entries may be single or multiple band. Single band entries should claim contacts on one band only, but submit details of contacts on other bands for checking only. Entries should be addressed to:

D. J. Andrews G3MXJ,
18 Downsview Crescent, Uckfield,
East Sussex, England, TN22 1UB.

Closing date 14th May 1979 (by airmail, please). ■

COMMONWEALTH CONTEST 1978 — RESULTS

The following is extracted from the RSGB results of the 1978 Contest

		points
1	ZL3GQ	6677
2	VE7CC	5821
3	VE3KZ	5687
4	VE5RG	5477
5	9H1EL	5393
6	VE3AKG	5249
23	VK4XA	3295

RECEIVING SECTION

2 Eric Trebilcock BCRS 195 2405 points.

AUSTRALIAN SCORES

23	VK4XA	3295	79	VK3MR	981
27	VK2GW	3060	80	VK8NT	968
34	VK7RO	2473	81	VK5FG	950
35	VK3ZC	2460	84	VK3YL	860
39	VK7CH	2340	88	VK5MD	820
40	VK3MJ	2321	91	VK5SW	755
45	VK7BC	2215	91	VK8GG	755
48	VK6AQ	1985	93	VK3YD	738
56	VK3RJ	1735	95	VK2BDU	735
61	VK7JB	1575	100	VK7RY	630
62	VK3YK	1538	102	VK4XJ	600
63	VK2AQF	1525	109	VK4JR	405
63	VK2XQ	1525	112	VK2BJL	388
65	VK6ED	1515	114	VK3XB	225
67	VK3KS	1240	116	VK5NLC	160
75	VK5BO	1058	119	VK7ZO	115

Single band entries among the above were
3.5 MHz VK5NLC Overseas leader, VK7ZO
7 MHz VK2BJL
14 MHz VK3MR Overseas leader, VK8NT, VK3YD, VK4XJ

ZLs other than ZL3GQ figured prominently

11	ZL2BCO	4545	54	ZL1HV	1810
12	ZL2BR	4481	83	ZL1AZE	908
20	ZL1AIZ	3695	113	ZLZMM	320

also 85 P29EJ 855

AUSTRALIAN AWARDS

The Silver Medallion for the leading VK entrant was won by Russ Coleston VK4XA, while the middle placing Bronze Medallion was won by "BO" Williams VK5BO.

How the leaders made their scores — Scoring details. QSOs/Bonus areas per band 80 to 10:

ZL3GQ	36/29	95/40	208/55	150/44	63/37
VE7CC	30/24	95/46	155/51	121/38	37/31
VE3KZ	18/17	81/38	155/54	150/35	86/23
VK4XA	0/0	34/26	119/49	37/27	13/12
VK2GW	11/10	50/34	63/44	20/19	9/9

VK4XA was unfortunate in that, having set the Sunday night for 80 metres, his power supply blew up with a few hours to go. The above figures are a reflection of band conditions in VK as compared with VE and ZL.

[illegible]

The long-awaited improvement in band conditions at last appeared during this contest bringing with it higher scores and QSO totals, and an increase in overall entries. Especially pleasing were the 28 MHz openings and, for Europe, the long 7 MHz opening to the Canadian west coast.

The top two positions this year go to the same stations as in 1977 although Peter Watson ZL3GQ, increased his margin with a score that put him well ahead of the field. There were many comments from all areas on his outstanding and consistent signal on all bands, and mention should be made of his extensive antenna farm which consists of 3/4/5 el quads for 14/21/28 MHz and a 160m dipole at 100 ft. for the lower frequency bands. In second place was Lee Sawkins VE7CC, who made 438 QSOs. For yet another year (the sixth in succession) Al Slater G3FXB won the Col Thomas Rose Bowl as the leading entrant from the UK.

The only band to attract many single-band entries was 14 MHz. Here, as in recent years, Stuart Jesson G4CNY was the leading UK station. He made 142 QSOs using a T4XC/R4C combination and a 2 el. quad. The overseas leader on 14 MHz was M. Campbell VK3MR who had a total of 90 QSOs.

The HF Contests Committee was disappointed to see the continued decline in the number of entries to the receiving section and would welcome suggestions on how this could be improved. The small entry, however, in no way detracts from the win by Ron Thomas BRS15822, who managed to double his score of last year and, in so doing, put an end to the winning run of Eric Trebilcock BCRS195, who has to be content with second place this year.

Many stations will notice that in the tabulation they have suffered a reduction in their claimed scores. In common with all RSGB events, the Commonwealth Contest is subject to detailed log checking. Especially damaging to a score can be an error in callsign, which loses all points (QSO and any bonus) to both sides of the QSO. Even worse are unmarked duplicate contacts, of which the committee takes a very poor view and de-

ducts up to three times the number of points claimed. Other errors — mistakes in reports or serial numbers — lose a proportion of the points claimed. The implications for care during the contest and checking of the entry should be obvious.

The committee was pleased to receive comments and suggestions with the logs and these will be considered in due course. Suggested changes to the rules included additional bonus points for each UK prefix and a longer period for the contest — possibly 24 or 30 hours out of 36 with a rest period. Over recent years, with the decline in activity from the rarer call areas, particularly in Africa, this contest has become very much a G/VE/VK/ZL affair but, despite this fact, it still remains a very popular event, as evidenced by many log comments. It is hoped that the rise in the number of entries continues in future years.

Note: No changes have been made in the rules for 1979. See this issue AR. ■

WICEN

Ron Henderson VK1RH
Federal WICEN Co-ordinator,
53 Hannaford St., Page ACT 2614
Ph. (062) 54 2059, A.H.

DATE TIME GROUPS AND TIME ZONE SUFFIXES

Date Time Groups (DTGs) are used in message writing and instructions to uniquely define a particular time and date, for example 12 noon GMT New Year's day 1979.

DATE, TIMES

Date time groups are normally written as digits, the first two being the date and the final four the time, using the 24 hours clock. These are usually followed by a time zone suffix letter and can be subscripted as necessary with month and year. Hence our example becomes 0112002 JAN 79.

ZONE SUFFIXES

When it is necessary to connect local mean time with Greenwich Mean Time, the zone suffix system of expressing time is used. It is particularly necessary when dealing with places keeping different local time. The system is as follows:

(a) Variations of local mean time from Greenwhich Mean Time (GMT) are denoted by adding the appropriate suffix letter to the date/time group as follows —

Number of hours local mean time is ahead of GMT	Zone suffix	Number of hours local mean time is behind GMT	Zone suffix
1	A	1	N
2	B	2	O
3	C	3	P
4	D	4	Q
5	E	5	R
6	F	6	S
7	G	7	T
8	H	8	U
9	J	9	V
10	K	10	W
11	L	11	X
12	M	12	Y

GMT is denoted by the suffix Z

(a) Thus 1600 hours Eastern Australian Summer Time becomes 1600L or 0700Z

(b) Where the local time is an odd multiple of half-an-hour ahead or behind GMT, a two-letter suffix is used e.g., 1500 hours SA standard time which is 9½ hours ahead of GMT would become 1500JK, or 0530Z

From a WICEN point of view we will often get messages with DTGs in the preamble and all WICEN exercise instructions should use DTGs to enable members to gain experience and to eliminate any chance of confusion. ■

DIVISIONAL NOTES

VK2 DIVISIONAL NOTES

Notice is given of an Extraordinary General Meeting of WIA-NSW Division to be held on 23rd March 1979 at the Wireless Institute Centre, 2000 hrs. Details are in February "MB" and include suggested disposal of WI fee, constitutional matters and vote of no-confidence. ■

The Annual General Meeting of the VK2 Division of the WIA will take place on Friday, 6th April, 1979. The successful candidates for Council will be announced at this meeting. Nominations are sought for Councillors of the Division and these must reach the office of the Institute, 14 Atchison St., Crows Nest, no later than 21st February, 1979.

All nominees must be full members of the Division as must be the proposer and seconder of the nominee. On reception of more than seven nominees ballot papers will be forwarded to full members in early March. These ballot papers must be returned to be received by the Administrative Secretary, 14 Atchison Street, Crows Nest no later than Thursday, 5th April, 1979.

The following format may be used in nomination of a member for Council.

I ..... hereby agree to nomination as member of Council of the N.S.W. Division of the WIA.

(Signature) .....(Date)

I ..... wish to propose ..... for nomination as a member of Council of the N.S.W. Division of the WIA.

(Signature) .....(Date)

I ..... wish to second ..... for nomination as a member of the N.S.W. Division of the WIA.

(Signature).....(Date) ■

Full licensee call signs have now reached the "D" series of suffixes — i.e. VK2DAA.

N.S.W. Division members are notified that the Annual General Meeting of the WIA New South Wales Division will be held in the Wireless Institute Centre on Firday 6th April 1979 from the normal time for meeting (usually 19.30h). Nominations for Councillors (a form was included as part of the January Minibulletin) must reach the Institutes' registered office no later than 21st February 1979. Ballot papers, if these are required, will be sent out early in March and are to be returned to the registered office by 5th April 1979. All details were included in the January 1979 Minibulletin insert into Jan. 1979 AR.

VK3

The Midland Zone Convention will be held in Bendigo on Sunday 25th February from 10.00h at the Strathfieldsaye Hall. ■

GEELONG RADIO AND ELECTRONICS SOCIETY

The Geelong Radio and Electronics Society, VK3ANR, has recently been livened up by the forming of two groups, an RF group, and an AF group.

The following test equipment for use by members, is now on order, a CRO, a signal generator, a GDO and some general tools.

A printed circuit board workshop is now operating using presensitised board and excellent results are being achieved. The AOCP, LAOCP and NAOCP classes are held free of charge to members on Mondays at 7.30 p.m. and Syllabus meetings on Thursdays at 8.00 p.m. Visitors are welcome at the rooms on the Breakwater Road, Belmont Common, Geelong.

Address for Correspondence

Geelong Radio and Electronics Society, VK3ANR, P.O. Box 962, Geelong, 3220. ■

MAGAZINE INDEX

Syd Clark, VK3ASC

BREAK IN September 1978
A Six State Logic Probe; A Battery Eliminator for 12 volt Rigs; QRP CW Transceiver; Simple Conversion of Pye Galaxie Radio Telephones to 2m FM; ITV and TVI; 80 metre Fox Hunting; Amateur Radio, What of it's Next 50 Years.

CQ August 1978
Clipperton Island — A Dream Come True; A Versatile All-Band Antenna Tuner; One Last Crack at the Code, 1977 CQ WW DX Contest (Phone Results); Insurance and Your Radio; Building Enclosures for Small Units; The W2DNV Delta/Slope Antenna; Dummy Up for DX; The Night of the Iguana; Gimmicking a CB Mobile Antenna for Two Metre Use.

CQ September 1978
Results of the CQ 1977 WW DX Contest (CW); An RTTY Primer, Pt. 6; Clipperton Island — A Dream Come True, Pt. 2; The GR 821 RF Admittance Bridge, Pt. 2; An Effective 40 and 75 Metre Vertical Antenna; The RF Faucet; A Simple 2 Metre Mobile Antenna.

HAM RADIO July 1978
General Purpose VHF Receiver; Sub-audible Tone Encoders; Pseudo-Logarithmic Spectrum Analyser Display; Variable Voltage Power Supply; Radio Sounding System; Frequency Display for the Heath HW2036; Phase Locked Loops; Voltage Calibrator for Digital Voltmeters; Multi-Band J Antenna; Colpitts Oscillator Design; Visual Aids for Microcircuits; RFI Cures for Home Entertainment Devices.

QST September 1978
Meet the Remarkable but Little Known Vackar VFO; Designing a Vertical Antenna; Pre-Scaler Updates the DVM/Frequency Counter; An Auditory Dip Oscillator; A Solid-State Transverter for 70 cm; An Inexpensive Capacitance Meter; Direction Finding — European Style; JG1QFW First Solo Explorer to Reach the North Pole; Operation Outreach; Ask Not What Amateur Radio Can Do for You; Results First Annual ARRL EME Competition, Results FMT; Dawn of an Era; WARC 79; Moved and Seconded; Amateurs Lose on Reconsideration of 10 Metre Amplifier Ban; We Are Not Alone.

QST October 1978
A Newly Discovered Mode of VHF Propagation; The Canadian Wonder; A 25 kHz Calibrator for the HW-8; Build This High Performance Top-Band Converter; SSTV Pictures from Your Microcomputer; Medium-Scan Television — A New Frontier; Build This Sardine Sender; You and Your Log; How Safe is Your Ham Shack, Pt. 3; A Different Kind of Courage; Sweepstakes for the Little Guy; Try a Hamfest Code-a-Contest; They Made It — W50DC/Double Eagle II; QST Abbreviations; 45th Annual Sweepstakes Announcement.

RADIO COMMUNICATION October 1978
Scrolling for the G3PLX vdu; A Collinear Antenna for Repeaters; Icom IC240 144 MHz Transceiver (Review).

RADIO ZS June 1978
How to Fit a Rotating Mast in a Tower.

RADIO ZS July 1978
Flat Lines for Flat Dwellers; How It All Began, The 10 Code.

RADIO ZS August 1978
Dual Purpose Battery Indicator; How It All Began; Common Repeater Problems.

SHORT WAVE September 1978
Antennas, The Weak Link, Pt. 5; Top Band for Next to Nothing; Memory Addition to G4CIK Morse Keyer; Courses for the RAE.

73 August 1978
Radio Row Revisited; How to Work Europe With an HT, What? CB Repeaters? A Complete X-Band Transmitter; Shock, The PVC Portable, The Amazing Mobile Life Preserver; Power Line DX; Ruddy Good Show, Rock Steady; In the Eye of the Beholder; The End of RF Feedback, The Heavyweight Sleight of Hand, CB to 10, In Search of Stability, On Your Mark, A WWV Primer; The Swiss Fork Special, The End of the Rats Nest, 2001-3; The Kalculating KIM-1, A No-Cost Digital Clock; The Basics of L-Network Design, Hung Up on the Autopatch, Updating the Wilson 1402 Quick Check for TT Pads, The Op Amp Beam Heading Indicator, Super Charger; HW-101 Owners, Check This Sidetone is a Must; The Tiny Tone Repeater Saver; Dispense It Right, Ham Radio Is NOT a Rich Man's Hobby; The Toggled 22, Custom-Make Your Key Paddle; Don't Let Your Battery Die, New Life for Double Sideband, Time and Tide — Digitally; The Sneaky J, The End of Autopatch Embarrassment; The "Do It All" Digital Clock, More CW Fun With Break-In Keying, Poor Man's Cruise Control. ■

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YAESU

FANTASTIC OFFER

YAESU FT-7

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$389

Complete with mike, mobile mount and usual accessories.

Stocks should arrive Feb. Order yours **NOW** before they sell out.

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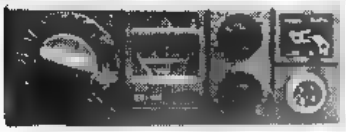
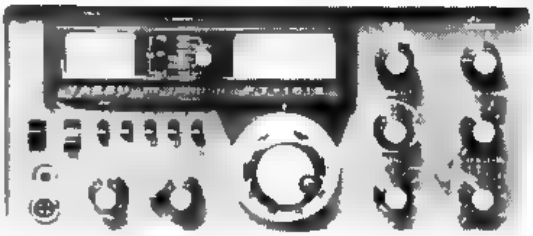


ICOM

IC-701, HF 160-10M Transceiver	$1369.
IC-202E, SSB Portable Transceiver	$229.
IC-225, FM 10 Watts 2M Mobile Transceiver	$309.
IC-211, ALL Mode 2M Transceiver	$770.
IC-280, Mobile 2M Digital Transceiver	$429.
IC-701PS Power Supply	$275.

Special offer on FT-101E

$799 (AC only)



incl. RF Speech processor
More effective noise blanker

AC-DC Model $879.

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Open Saturdays.

SUPPORT LOCAL INDUSTRY.

VERTICAL ANTENNAS.

AMV-5

80-10 M only

$99

including radial kit.

12 month warranty.

AM4-2.

DUO BAND BEAMS NOW ONLY **$149**

YC-601. Digital readout Adaptor for FT-101E $279.

QTR-24. $33.

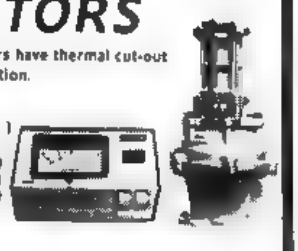
YD-148 $49.

YAESU

FT 901DM, 160-10M Transceiver	$1595
FT-901DE 160-10M Transceiver	$1305
FV-901 External VFO for FT-901 40 memories	$449
FC-901 Antenna coupler incl SWR and PWR	$269.
YO-901 Monitorscope for FT-901 nc,pan adap.	$TBA
YV-901 Transverter for FT 901 6M,2M,70cM	$TBA
SP-901 External Speaker for FT-901	$53
FT 101E 160-10M Transceiver ac only	$839
FT 7 80 10M Transceiver	$389
FP-4 Matching Power Supply	$78.
FRG-7 General Coverage Receiver	$369.
FRG-7000 Digital General Coverage Receiver	$675
FT-227R A 2m Mobile Transceiver	$389
FT 225RDM 2M ALL Mode Transceiver	$995
FL 2100B 1200 Watt Linear Amplifier	$559
FL-110 200 Watt DC nput Linear Amplifier	$245
YO-101 Monitorscope for FT 101E	$379
YP-150 Dummy Load-Watt Meter	$112
YD-844 Desk Mic.	$52
YD-148 Dynamic Desk Mic	$49
QTR-24 24 hr World Clock	$33
FV-101B Matching VFO for FT-101E	$155
YC 5005, 500 Mhz Frequency Counter	$830
YC-500J 500 Mhz Frequency Counter	$359.
FTV-250 2M Transverter	$329.
SP-101B Matching External Speaker for FT-101E	$53.
YC-601 Digital readout Adaptor for FT 101E	$279.
FC-301 Antenna Tuning unit nc, SWR Pwr meter	$239
YO-301 Monitorscope	$319.
Optional Crystal Filters	$59
FF 501, DX 2kW,ow pass filter	$41

ROTATORS

EMOTATOR Rotators have thermal cut-out for overload protection.



Emoto model	(kg./cm) Torque
103 LBX	1 500
502 CXX	4.000
1102 MXX	10 000

EMOTATOR

103LBX Medium Duty	$169
502CXX Heavy Duty	$249
1102MXX Extra Heavy Duty	$369
1103MXX Extra Extra Heavy Duty	$395
502 Mast Clamp	$32
103 Mast Clamp	$22
VCTF-7 7 Core Cable, per Metre	$1 20
VCTF-6 6 Core Cable, per Metre	$1 00

KENWOOD

TS-520S HF Transceiver ac only	$759.
TS-820S HF Digital Transceiver ac only	$1179.
SP-520 Matching speaker for TS-520S	$37 50
SP-820 Matching speaker for TS-820S Inc filters	$66.
VFO-820 Matching VFO for TS-820S	$165.
VFO-520 Matching VFO for TS-520S	$147.
SM-220 Mon tor Scope Kenwood series	$329.
DG-5 Digital Display for TS-520S	$194.
DS-1A DC Converter TS-520-820	$74.
DS-5 Pan Adapter for TS-520S	$60.
DS-8 Pan Adapter for TS-820S	$60.
AT-200 Matching Antenna Tuner Power meter	$184.
Optional crystal filters	$54.
MC-35S Hand Mike HI Z	$25.
MC-50 Base Mike HI and LO Z	$52.
TS-120 80-10M Mobile Digital Display 30W PEP	$TBA.

All Equipment pre-sales checked and wired for 240v ac operation!!!!

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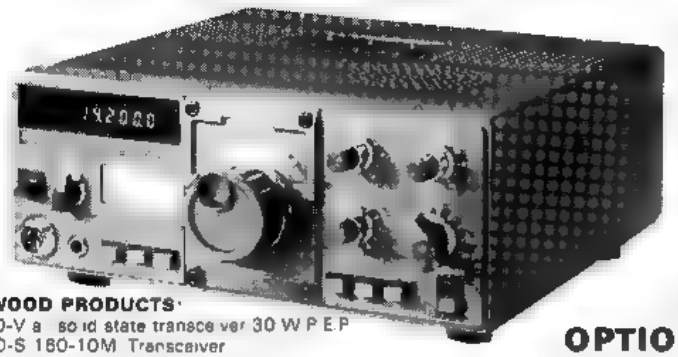
B & K Precision Test Instruments.

KENWOOD



KENWOOD PRODUCTS
TS-120-V a solid state transceiver 30 W P.E.P
TS-520-S 160-10M Transceiver
TS 820 S 160-10 M Transceiver
R-820-S 160-M Transceiver
R-820 Communications receiver
TS-700-SP A.I mode 2M transceiver
TS-600-A A.I mode transceiver
TS-7000-A 2 M FM 25W Transceiver
TR-7500 2 M FM 10.W transceiver
TR-7600 2 M FM digital transceiver 800 CH.
TR-8300 70 CM FM Transceiver
VB-2200-A. Power booster for TR-2200
VFO-30-G Remote VFO for TR-7200 TX-12 MHZ-RX. 45. MHZ.

OPTIONAL ACCESSARIES
VFO-120
PS-20
MB-100
YK-88C
SP-120

KENWOOD PRODUCTS
TR 7200-G 2 M FM 10.W Transceiver
TR 7010 2 M SSB 10 W PEP Transceiver
TV 502 2 M Transverter
TV 506 6 M Transverter
TL 922 2 KW. PEP Lineal amplifier
SP 8 Regulated Power supply 8.Amps
VFO 520-S External VFO for 520-S
VFO 820 - External VFO for 820-S
VFO 700-S External VFO for TS-700-SP
SM-220 Station monitor
BS-8 and BS-5 PAN adaptor
SP 820 Deluxe Speaker consul
SP 520 Speaker consul
SP-70 Speaker consul for TS-700 & 600
VOX-3 Vox unit for TS-700 & TS-600
DS-1-A DC converter for 520-S & 820-S
DG-5 External digital display TS-520-S
AT-200 Antenna coupler
MC-30-S Microphone 500 OHM
MC-35-S Microphone 50 K OHM
MC-10 Microphone 50. K OHM
MC-50 Deluxe desk Microphone dual imp
HC-2 Deluxe Ham clock
YG-68 CW filter for TS-820
YC-3395 CW filter for TS-520
LA-30-A Lowpass filter
HS-5 Headphone
HS-4 Headphone
RD-15 Dummy load 450 MHZ. 15 Watts
RD-300 Dummy load 150 MHZ. 300 Watts.

HY-GAIN ANTENNAS

12-AVQ 10-15-20M vertical 13 ½" tall	$50
18-AVT/WB 10-80M vertical 23" tall	$125
TH6-DXX 10-15-20M senior 6 el yagi 24' boom	$300
TH3-MK3 10-15-20M senior 3 el. yagi 14' boom	$240
TH3-JR 10-15-20M junior 3 el. yagi 12' boom	$175
204-BA 20M 4 el Tiger Array 26' boom	$230
HY-QUAD 10-15-20M full size cubical quad	$260
2M 5 el Yagi w/balun 6'3" boom	$25
2M 8 el. Yagi w/balun 12'5" boom	$30
2M 14 el Yagi w/balun 15'6" boom	$40
BN-86 Balun 50 ohm 1:1	$20
BU 5 Balun 50 ohm 1 1.	$14

ANTENNAS SUITABLE FOR 10M

11M 5 el Yagi 17' boom	$70
11M ¼ wave G P w/3 radials.	$20
CLR 5/8 wave vert. w/4 radials 22'9½" 11M.	$50
CLR 2 5/8 wave vert w/3 radials 19 10" 11M	$40

ROTATORS AND CABLE

KEN KR 400 rotator medium duty 28V AC	$125
CDE HAM L11 rotator heavy duty	$175
RG-8U Polyfoam Coax	80c per yard
RG-58U Coax	30c per yard
8 core rotator cable	65c per yard

SKY-BAND MOBILE HELICAL ANTENNAS

SKY 80 six feet long 3.5 MHz	$28
SKY 40 six feet long 7.060	$26
SKY 20 six feet long 14.150	$26
SKY 15 six feet long 21.100	$25
SKY 10 six feet long 28 500	$24

CRYSTAL FILTER, 9 MHz, similar to FT-200 ones. With carrier crystals.... $39

COAX CABLE CONNECTORS
PL 259
SO 239 Chassi Mount
Male to male joiner
Female to female joiner
Angle connector

Accessories

SWR 50A 3 5 150Mhz SWR meter	$26
12VDC regulated supply	$26
5M RG 58-U w/PL-259 one end	$3
Bumper mount c/with 3/8" 24-thread ant. mount	$7
Gutter mount c/with 3/8" 24-thread ant. mount	$4 50

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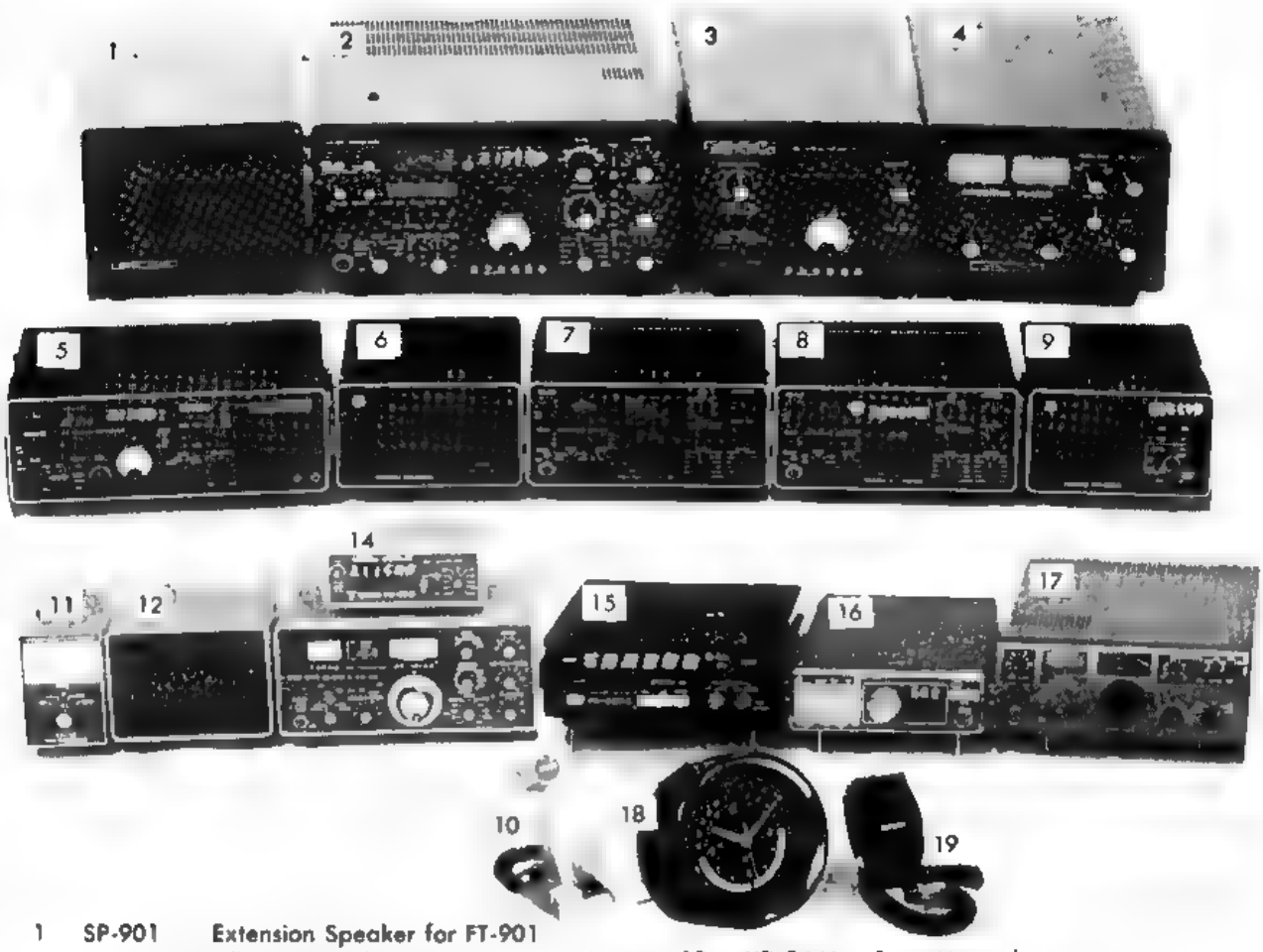
YAESU AMATEUR EQUIPMENT



1	SP-901	Extension Speaker for FT-901
2	FT-901DM	All HF Band Transceiver with Everything!!
3	FV-901DM	VFO with Scanner & memory for FT-901DM
4	FC-901	Antenna tuner for FT-901
5	FRG-7000	Full band HF Receiver with Digital Clock
6	FP-301	25 amp 13.5V Power Supply with Speaker
7	FT-301	All HF Band Transceiver
8	FT-301D	All HF Band Transceiver
9	FP-301D	25 amp 13.5V deluxe Power Supply with Digital Clock, Speaker & I D facility
10	YD-844A	Base Microphone
11	YP-150	Dummy Load
12	SP-101	Extension Speaker for FT-101E
13	FT-101E	HF Transceiver
14	YC-601B	Digital Counter for FT-101E
15	YC-500S	Frequency Counter
16	FT-227	2 metre FM Transceiver
17	FT-7	HF mobile Novice Transceiver
18	QTR-24	World Clock
19	YD-846	Mobile Microphone

★★★

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1978 REMEMBRANCE DAY CONTEST RESULTS

WINNER — VK1 DIVISION

	a.	b.	c	d.
VK1	204	1556	26047	129237
VK7	321	1581	34121	107677
VK6	708	2641	58265	85169
VK5/8	1143	1819	69872	62630
VK4	1071	2054	59325	57445
VK3	2615	1566	48463	20099
VK2	3312	1488	[illegible]	15063

a. Licences.
b. Average top 6 logs
c. Total points from sections a, b and c.
d. Trophy score.

The following details show the section and the points scored

VK1 PHONE

GB	2013	NBH	413	ZT	142
PM	1768	KV	401	ZGB	127
RK	1082	US	384	NBI	107
BC	1074	PA	337	ZTX	106
TD	1018	QJ	309	DS	82
SB	948	BS	305	VW	79
GM	797	NAV	293	VP	69
BX	729	FT	289	OE	66
RH	696	NBM	272	ZJR	55
DV	650	ZAR	235	ZAG	34
NAT	621	NAO	195	TR	32
KP	513	EF	195	ANR	23
XU	480	YS	189	ML	12
TH	454	JN	184		
MF	448	WI	171		

VK1 CW

PG	1368	OH	530		

VK1 OPEN

AOP	1552	RC	1153	NAS	505
DA	1492	JN	1034	AVM	89

VK2 PHONE

ARX	1794	NMG	295	HJ	108
BGI	1264	AIC	289	NWE	102
ADZ	1276	CI	286	BJT	100
BAX	1164	ZBV	272	ZIA	100
BDN	1136	AUX	267	NJN	100
BAM	1128	XT	227	NWL	89
BGL	1011	QC	223	BDT	88
AGF	935	AKQ	214	NYZ	82
BFR	809	AGZ	188	LE	80
BIP	795	NFT	186	NUK	78
BUC	747	ZCI/		NFQ	74
BFQ	678	NRB	180	ADL	71
BSB	652	NHD	180	WD	70
NUO	640	BND	177	AZD	65
AUX	625	NAM	175	CO	60
APQ	597	PN	166	† ZBL/	
LF	571	AJH	166	2	52
RX	563	BHD	166	AWF	39
ASH	555	APP	165	VW	38
BXD	467	BJN	164	NRY	38
NMH	401	EY	161	NZG	38
YEZ/		AEC	151	BIO	35
NQL	382	WT	145	NDC	32
BOD	359	AJL	126	ZVH/	
NYL	339	NHA	125	NTN	28
PT	325	AZR	124	IK	27
AQ	306	AXL	122	CF	22
NV	306	WA	118	AWX	13
BAV	304	JQ	117	ZSG	13
BQS	301	OH	107		
WG	296	NXB	107		

VK2 CW

CX	1278	II	536	IV	200
BF	1020	BCC	470	JM	154
QL	964	GT	392	BAC	152
XQ	942	HC	240	RJ	114
AQF	872	ABM	228	VM	86
BHO	608	JY	224	BSG	44
EL	563	GR	210		

VK3 PHONE

BO	2073	SW	197	AJQ	47
OO	1283	CU	191	NAW	34
BTZ	1253	ADR	152	ZVN	23
NPS	1196	AHU	113		
AOA	1178	HZ	105		

VK3 PHONE

ADW	1402	AAW	389	BFN	111
ANA	1309	NMW	367	ARS	106
AQZ	1280	AEC	348	AOM	101
NNX	1199	NBP	335	ZE	98
AFE	1119	ZJ	326	WY	94
BIR	1105	RU	324	YFZ	91
BLF	1096	AGH	318	BIT	89
ANM	1070	NAW	316	BIE	88
DF	985	QH	303	LR	86
BHU	894	OD	299	RF	68
DB	882	SZ	290	BSR	63
NLO	826	XY	281	ZAE/	
BLY	813	BII	275	NED	63
NMI	791	BJM	266	NMX	60
NLS	736	WJ	244	ZAO	76
AYF	699	AIE	239	BMV	76
NJE	676	NAF	219	YLD	76
YO	658	AMK	218	AVQ	74
XF	604	BGM	212	JY	73
SM	570	ZYL	203	OK	59
LP	564	NOV	190	BJW	56
BBM	540	JV	183	RN	51
YQ	511	BIS	182	AAI	42
NDF	483	ZUX	173	ACS	39
NB	469	NNU	154	BER	39
AER	469	BCC	151	ZXW	34
HE	465	ZR	141	ZNQ	22
RV	429	YIW	137	BME	21
JG	424	NFQ	131	BDL	15
KK	399	NRB	121	ATN	6

VK3 CW

AEW	774	AJB	396	FG	86
FC	748	AMD	396	ACV	55
DG	624	ANI	320	AT	46
RJ	574	MR	209	FA	39
KF	518	SV	184	AYL	28
YK	474	NK	164	OF	22
BDH	470	YL	84		

VK3 [illegible]

UM	2291	HY	407	AZT	205
WP	1758	VF	387	ALS	201
WW	1354	PR	330	KS	101
YF	836	XB	315	NKY	83
QP	560	NIL	268		
LV	410	DQ	219		

VK3 [illegible]

9ZM	2596	NFU	565	RF	232
YS	2375	BG	543	VU	221
QJ	1749	FN	484	CW	214
SE	1636	MI	484	ADW	212
ARW	1368	PJ	475	HB	209
AGP	1316	FX	469	CI	201
AFF	1289	DO	460	QT	183
QO	1251	ACT	431	UG	169
KW	1236	EQ	422	AMA	167
AMH	1212	AG	393	LK	166
TE	1146	NKD	379	NJL	152
WIT	1136	2RP/		UJ/	
AEV	1121	4	366	P	144
PF	1118	YT	337	CZ	142
RT	1051	KD	301	ZBV	129
ADR	983	OX	296	AET	122
ACM	960	LE	274	XT	107
NU	931	RO	260	PV	104
YL	876	QA	258	XZ	102
ADA	809	PS	255	FE	89
NEX	700	JY	246	FU	83
AAK	669	ASC	245	AKO/	
ZIT/		RE	244	P	80
NFN	600	NJN	235	NFO	65
ZIG	84	4	37	NV	21
NBZ	82	ZWT	35	EH	20
XN	81	ZLP	34	HW	20
ZGB	59	DH	32	ZSD	20
NHR	52	ZDE	31	PR	19
AF	47	ZSK	31	ZTJ	18
ZRF	47	QY	28	NIL	17
3EF/		ZDG	28	MJ	16
M4	46	DY	27	GT	14
VS	42	ZEA	27	ZRU	11
BQ	39	ZJP	27	NS	9
IE	39	IQ	24		
3CX/		ZFA	22		

[illegible]

XA	1715	FB	492	SV	222
KX	1118	LV	356	SF	214
JH	754	CJ	320	OK	189
HH	694	QM	240	CV	168
XJ	626	XY	228	AXJ	76

VK4 OPEN

HE	1964	AAJ/		AWR	253
MS	1927	P	747	ZA	79
RH	1413	WL	483	LZ	57
UX	1000	DT	394	F	56
GH	967	ATW	378	AK	55
YG	621	SO	359		

VK5 PHONE

QX	2163	ZBI	302	ZSD	111
CHL	1971	NIC	293	RX	108
MG	1773	OC	291	NBG	103
MM	1529	WR	289	FX	96
LP	1219	LM	282	NJS	95
NX	1208	EF	281	ZHS	94
ZH	1159	ZAY	278	VB	90
ZZ	1068	OL	274	QL	87
OU	1021	WIE	272	ZCM	86
NN	995	ZK	263	JX	84
ZGO	904	ZMO	254	JT	82
LN	861	NVM	246	ZQ	82
XZ	856	VE	245	NDB	80
NJ	849	NDS	239	YX	78
BI	775	NRM	216	NJI	76
AMJ	753	ACE	205	HN	75
KR	740	RI	206	YV	73
NJQ	737	ZF	203	NPP	66
FO	715	ZSF	203	SN	66
DI	702	OZ	203	NCC	63
TY	675	VV	194	ZB	63
BW	644	WW	189	KG	62
GL	586	CY	188	AS	60
ATW	580	ASA	187	HJ	58
ABW	572	ZLH	184	CA	57
ZJB	555	ZIM	182	EL	57
US	545	DT	176	IM	57
SP	530	ZRS	176	NF	56
LQ	529	BG	173	ZAJ	51
TZ	526	NIS	173	WN	50
NBC	526	LC	168	AAA	45
IZ	522	KX	158	HM	44
ZSB	511	ZJE	158	SE	43
OV	494	RR	151	BF	42
VT	479	KH	137	ZRW	42
NI	474	ZGP	137	NDG	40
NJO	432	ZBC	131	ZRF	40
AMW	425	IA	130	RC	33
IT	408	ZRJ	128	YQ	30
ARZ	402	ZIW	127	ZX	29
NSU	400	LL	126	ZT	28
NGP	395	NCE	124	DO	26
ZJG	382	IQ	123	ML	26
SG	375	NSC	123	ZLX	25
ND	368	NAJ	121	UL	24
RV	366	NOK	121	ZJJ	23
NPC	358	ZKK	120	CJ	22
FD	357	TW	119	ZPB	20
EV	352	ZNJ	119	QS	13
NSA	352	DQ	116	ZSS	13
ZU	333	WC	116	ZMM	11
NBL	331	DH	114	KT	7
ZIC	312	WF	111		
QV	308	ZMA	111		

VK5 CW

8HA	1526	HO	416	ABB	116
UM	1410	DL	322	OR	82
OR	1222	KU	322	UE	68
BN	816	LI	316	KY	62
FY	566	RT	150	NKA	52
AU	492	QQ	127	AI	17

VK5 OPEN

EN	1816	NTB	586	RK	270
KK	1607	QI	552	AVQ	261
8NT	1583	8DB	396	JK	127
BO	1510	NMQ	390	TL	37
MY	1123	6NJN	370		
ALC	584	IP	343		

VK6 PHONE

AS	3589	LV	392	SH	131
WV	2843	CD	374	NCW	130
HK	2566	ZBJ/		TU	127
OR	2254	NBJ	364	ZGA	124
DA	2081	FS	361	KD	121
NBJ	1894	FM	304	ZJX	116
AO	1757	ZDT/		JK	112
JP	1732	NCT	303	NER	90
ST	1538	NCR	298	MM	83
LD	1293	ZHM	254	WV	74
DY	1241	NAR	246	IC	71
SL	1162	ZIT	230	ZKI	68
JX	1028	HU	227	MB	67
NAY	956	LG	221	EJ/	
IF	954	TP/		P	45
9XW	897	P	217	MO	40
RL	720	TR	185	EB	39
NDG	663	ZBD	178	NEB	37
NAN	646	BV	164	IH	31
XD	573	GB	160	ZGZ	26
WL	488	ZGO	152	ML	19
NCY	455	ZFB	147	NDL	18
TX	445	NCQ	145	JO	8
AN	444	MQ	140	ZKL	7
DC	417	OO	139	SO	5

VK6 OPEN

ED	2512	LP	632	ZKY/	
RU	1898	NAG	632	NAM	194
PD	1374	FC	532	GL	107
NAO	970	HE	384	MG	82
GW	746	CR	285		

VK6 CW

WT	1874	RM	676	HX	275
HQ	1756	AJ	668	SM	222
AQ	1226	MA	396	NK	212
RS	770	VK	358		

VK7 PHONE

AE	2042	WI/P	388	KK	144
KZ	1686	BM	382	NXJ	107
HK	1633	CT	375	LS	102
MS	1487	NTS	359	ZBL	102
KH	1274	CL	342	ZJB	93
KC	1154	BJ	297	IL	84
MX	1041	FT	290	TT	76
GD	842	JR	265	ZAH	64
GW	834	EB	264	ZTA	62
HL	802	AI	261	JD	34
JV	668	NFR	251	ZAK	34
SS	650	NAD	250	NAM	32
NCW	628	AX	233	KS	30
AW	622	NRM	216	NWS	30
IC	595	NSA	192	JG	23
SG	552	LH	178	ZAJ	18
NOW	511	PS	176	ZDC	18
NDP	510	ZLB	176	ZRF	17
SF	470	MG	168	ZBY	15
PF	434	CF	155	JN	12
NAE	424	ZOA/			
PK	414	NOA	155		
GS	410	ZFP	147		

VK7 CW

CH	1364	MZ	356	MC	198
RO	1162	RD	322	ZO	96
TW	840	GV	270		

VK7 OPEN

CCC	1022	AC	277	NGD	199
ZZ	520	ZIF	271	ZAT	198
AL	486	ZPB	231		

RECEIVING

Bryan Gard	L1003	3476
Ron Whitford	S. Aust.	2363
Graham Mutton	L70107	1992
Gregory Cooke	Vic.	1789
F. H. Price	L60030	1707
June Greenaway	W. Aust.	1662
John Brereton	L50257	1593
David Pedler	L30740	1107
L. J. Harper	L70151	1104
Eric Trebilcock	L30042	824
Stephen Pall	L20301	758
John O'Brien	N.S.W.	723
Mark Stephenson	L30848	669
H. J. Charles	L70126	631
M. Davidson	Qld	608
Robert Chester	L50087	476
George Edmeades	L50122	345
George Clark	L60336	316
Robert Hodges	L40724	233
Daryl Boyce	L20668	140
Tim Hamilton	L60296	107
S. E. Maddigan	Tas.	45
David Warrington	S. Aust.	35

OVERSEAS CHECK LOGS

P29LS	Ph	3432	ZL2GJ	P	1279
ZL1GQ	O	2578	P29GA	P	328
ZL1AFE	O	1972	ZL4IJ	P	311
ZL4BE	O	1754	ZL1AGO	P	311
ZL4HA	CW	1664	ZL1TB	P	263
ZL3SZ	P	1433	ZL3TX	P	199
P29NKV	P	1395	ZL1HV	CW	—
P29EJ	O	1305			

COMMENTS FROM CONTEST MANAGER

The general standard of log presentation was shocking. A large number of logs did NOT have a cover sheet giving the details required in the rules, others were not scored and in one case no call-sign or name appeared. Every size, shape and quality of paper was used and one log was even held together by solder! The worst Division for errors was VK1, over 50 per cent of the logs were totalled wrongly making hundreds of points of difference.

These matters make the job of the contest manager more difficult and this being my first one has stunned me somewhat. Consideration must seriously be given in the future to disqualify without question any logs that do not meet the simple instructions laid down in each contest for presentation.

So much for the brickbats — now for some bouquets. Eric Trebilcock, Receiving Section CW only.

The following Novices for excellent scores:

VK1NAT	821	VK2NPS	1196
VK3NNX	1199	VK4NEX	700
VK5NTB	586	VK6NBU	1994
VK7NCW	626		

Alan VK2BAX and Pierce VK2APQ for the best presented logs. ■

QSP

VHF & HF CROSS PATCHING

The Postal and Telecommunications Department has advised that they are concerned with the cross-patching of Amateur stations from VHF to HF and vice-versa. This system is employed regularly by some clubs during their club nets. The Department has stressed that it is contrary to the regulations for a Novice's transmission to be relayed to any band which Novices are not permitted to use, and similarly, Limited calls must not be relayed to any band which they are not permitted to use ordinarily.

Members of the Department have apparently observed through-patching of Novices to VHF and Limiteds to HF without even the appropriate identifications being announced.

From VK2 Mini Bulletin, Dec. '78. ■

HAMADS

- Eight lines free to all WIA members. $9 per 3 cm for non-members.
- Copy in typescript please or in block letters to P.O. Box 150, Toorak, Vic. 3142.
- Repeats may be charged at full rates.
- Closing date: 1st day of the month preceding publication. Cancellations received after about 12th of the month cannot be processed.
- QTHR means the advertiser's name and address are correct in the current WIA Radio Amateurs Call Book.

FOR SALE

TH6DXX Hygain, as new, complete with BN86 balun and 36 ft. heavy duty galv. mast, crated on transport, $275. Dentron antenna tuner MT-2000A, $210. Oskerblock SWR-200B, $50. Both new, in cartons. Katsumi EK26 elec. keyer, 12V-240V AC, good cond., $50. J. Moyle VK4ZT, QTHR.

Yaesu FGR7 Rx in mint condition, $280. VK2BIW, QTHR. Ph. (02) 27 6432 (bus.) or (02) 449 2198 (AH).

Heathkit HW101 80 thru 10, excellent performer, heavy duty power supply, mic., spkr., $350. VK3BAF, QTHR. Ph. (03) 546 4947.

Complete Drake Station, mint condition, T4XC Tx, 200W PEP and R4C Rx (160-10m), $899. AC4 power supply, $85. MS4 speaker $25. Extra xtls for almost entire 0-30 MHz band, $40. All connecting cables, all ONO. Will trade FT101 or similar for mobile work, particularly. VK5TO, QTHR. Ph. (08) 278 3126 AH, or (08) 381 1493 bus.

Sideband SE502 Transceiver, 240V AC 12V DC, 24 ch., 28.3/28.6 MHz, clarifier Rx¾Tx, SWR/RF meter, 3 el. 10m yagi, plus 50 ft. co-ax, $205. Bruce Hood VK5NBA, Bootagoon, via Naracoorte, 5271, Ph. (087) 64 7545.

Icom IC202 2m SSB/CW Transceiver, Oscar crystal plus 12W linear, complete with coax leads, $175. Full set of Hustler mobiles, complete with base and spring, $100. VK2LH, QTHR. Ph. (02) 456 2027.

Yaesu FL-200B Tx and FR100B Rx, spare set new final tubes, speaker, manuals, connecting cables and mike, $350. Swan Txcvr, 80-40-20m, AC and 12V DC power supplies, $150. Yaesu 6m convertor FC6, $20. Herb VK4KM, QTHR. Ph. 55K Mundubbera.

Bargains in mint condition, complete with original cartons and manuals. Drake TR-4C with spare new finals, all xtals, RV4C remote VFO, 34PNB noise blanker, AC4 power supply, Yaesu FRG7 receiver, KW107 Super Match, Mosley TA33 Senior tri-band beam, Drake TV3300 low pass filter, Shure 201 mike, mike mixer pre-amp., Mini SWR meter. Best offers. Must be sold. VK2ASH, QTHR.

Communication Rx, Realistic SX190, covers ham and internat. BC bands in eleven 500 kHz segments, with service manual and speaker, new cond., $160. VK1ZUM. Ph. (062) 49 1595 AH.

Multi-Band Vertical Antenna by Hidaka, 80, 40, 20, 15, 10m, complete with nylon guy ropes, as new condition, 12 months old, $100. 10m mobile transceiver, ex. 11m band. Gemtronics GTX3325, 28.3-28.59, power supply also available if desired, $100. VK4NGK, 28 Coolmunda St., Mansfield, 4122.

"Belcom" SSB Tcvr, covers 28.348-28.636 MHz, also fitted for CW, $90. Brian VK2BVH. Ph. (02) 525 2547.

Yaesu FT 76-B 100W 10m-80m Tcvr, AC and DC power supplies, external VFO, mobile mounting cradle, xtls for all bands. All as new condition, $450 rail freighted anywhere in Australia. 100 Hz to 30 MHz digital frequency counter, $95. P. King VK2NRZ. Ph. (049) 73 1120 AH, (049) 77 1103 bus.

Collins KWM-2 Tcvr with Collins PM2 plug-in power supply, first class order, with instructions, mic., dummy load, SWR meter, etc., complete station, $1450. Ken KP202 2m FM Tcvr in "as new" cond., with full complement of xtls (repeaters and 40/50), nickel-cad. batteries and 240V charging base, $155. VK3AHR, QTHR. Ph. (03) 836 4203.

National NCX-3 Xcvr, 240V PSU/SPKR. Turner 90D-S Mike, $250; Drake SSR-1 Rx as new, $250; Eddystone 770R VHF Rx, $195; Heathkit IM-18 VTVM, 240V, $35; Advance H-1 Audio Sig. Gen., $50; 301 SWR Meter, $12; all items with handbooks. Chas VK3IB, 75 Lloyd St., Dimboola, 3414. Ph. 76.

FT101 and Oskerblock SWR Bridge, $600 the lot. VK3ADB, QTHR. Ph. (051) 34 2718.

Swan 700 CX SS-16B-Special 700W PEP SSB Transceiver, complete with AC supply and special 16 pole filter and spare finals, mint condition, $850. VK3WW, QTHR.

Hygain trapped Vertical Antenna, type 14AVQ for 10, 15, 20 and 40m, good condition and instruction manual included, $75. VK2AXR, QTHR. Ph. (02) 44 1389.

200 MHz Frequency Counter, basically EA design, fully built and calibrated, features 0.6" LED read-outs, selectable 7 digit/2 second update or 6 digit/continuous update, ceramic range switch, BNC input, 240V AC/12V DC operation, lives in a grey enamelled box 220 x 230 x 70 mm, $90 ONO, will consider swap with/without cash adjustment for other gear. FT101 series mobile mount, $20 ONO. Mike Vale VK1VW. Ph. (062) 88 8994 AH, (062) 83 2215 bus.

Morse Tapes — All Speeds — the cheapest and the best. C60 specify speed when ordering. $2 posted. WIA VK2 Education Service, PO Box 109, Toongabbie 2146.

Yaesu FLDX/FRDX 400 Matched Tx/Rx with ext. speaker, manuals and original packaging, 10-80m, 240W PEP split frequency capability, AM, SSB, CW, 2 selectable filters, FSK obtainable by making minor modification, mint condition, $650. VK2NOK. Ph. (02) 827 3589 after 0900 hrs. GMT.

"Amateur Radio", Oct. 1971 to Dec. 1976, complete except Aug., Dec., 1973 and Nov. 1976. Also "New Scientist" 29. July 1976 to 29. Dec. 1977. Best offers plus postage accepted. VK3GI, Box 22, Woodend, Vic. 3442, or Ph. (054) 27 2576.

Yaesu FT DX 400 with adjustable effective noise blanker, speaker, cooling fan, second VFO, set of 19 spare valves, manual, $500. TR-44 rotor and control unit, manual: $90. MFJ (US) audio speech processor, manual, $25. All equipment clean, unmarked and in original working order (owner paid $650). VK2AOU. Ph. (02) 53 9789 AH, (02) 807 0484 bus.

Yaesu FT620B Transceiver with VC-75 voice controller and handbook, as new, 20W SSB, CW; 6W AM; AC/DC, all solid state auto final protection, $515. VK2ZMA. Ph. (02) 634 2451.

Eddystone Model EC10 solid state communications Rx, .55 to 30 MHz, excellent condition, $160. Ross Treloar VK2BPZ, QTHR. Ph. (02) 239 5267.

Linear using pair of 3.500Z in parallel, built to Heathkit SB 200 circuit, power supply, separate range of some 2000-5000V. All parts imported from US, 2 only new 3-500Z as spares. Power supply 20-30-40V each side CT — 10A with 6/40 rectifiers, electro condensers and 3055 to make two 10A — 12V supplies, voltmeter included. Offers requested for both. H. G. Wilson VK4AGO, QTHR. Ph. (071) 27 4101.

Tower, Hills 57' triangular steel winch-up, CW base used guy wires, turnbuckles, etc. $220; also Standard 6 ft. rack, $20. VK2DV, QTHR. Ph. (02) 371 6735.

Realistic DX160 Rx, perfect condition, $100. VK2NFN, QTHR. Ph. (042) 84 6170 AH.

TS520, unmarked, 18 months old, AC/DC, $520, or may haggle a little. VK2AZT. Ph. (069) 42 1392.

Swan 350, matching AC, PS, USB, LSB, xtal calibrator, VOX unit, microphone, manual and unused spare valve and relays, $350. VK2YN, QTHR.

Yaesu FTDX560 Tcvr (similar to FTDX401), 560W PEP 80-10m, with noise blanker accessory. All in A1 condition (some spare valves included), $500. Eddystone Amateur band only Rx 888A (double conversion), some spare valves, $200 ONO. VK2UE, QTHR. Ph. (02) 451 3032.

Yaesu FR101 Rx, including both 6-2m converters, all modes 160-2m. Yaesu FL101 Tx, 160-10m, both units as new condition, in original cartons with instruction manuals, $1300. VK6ET, QTHR. Ph. (092) 276 8928.

Audio Magnetics recording tape, 1800 ft. on 7 in. reels, in boxes. No drop-outs, high sensitivity. Performs identically to Scotch and Ampex pro. stock with small bias adjustment. Specifications available, incl. typical noise, frequency response and distortion figures. $5.00 each or $4.50 for 10 or more. Surplus to own need. VK3BND. Ph. (03) 523 9229.

C60 Cassettes Hi-Fi LN Screwed Case, $65 per 100 inc. freight. Smaller lots sim. rate, Army HF C11R210 TRNSC inc. PS ATU cables and manuals, $120. HF Rec. 7/15 MHz Ex DCA, $30. EA Deltahet complete kit, $150. Phone Barrie VK3YMW (058) 21 9458.

Yaesu FRG-7, 0.5 to 30 MHz continuous coverage Rx. Latest model with fine tuning, as new condition, plus professionally built 2m mosfet converter, would be, but no morse novice, $320 ONO. Ph. (03) 91 4041.

Drake T4X-R4A combination with power supplies, instruction manuals and connecting cords, in excellent condition, $750, or sell separate. Galaxy "Rejecto" audio filter and amplifier with 12 volt P/S, $50. Drake noise blanker NB4 for R4C Rx, new, $45. Quasi-logarithmic speech processor, as new, $45. MFJ SSB selectivity filter, $20. VK3LC, QTHR. Ph. (03) 509 2556.

Complete Dranke Line Station, comprising TR4C Tcvr, $575; remote VFO RV4C, $125; external spkr. box MS4, $42; ant. matching unit MN4, $115; wattmeter W4, $49; cables and mike included. All mint cond., looking for buyer in Sydney metrop. area who will take complete station. Offers invited. VK2AOW, QTHR. Ph. (02) 449 3538.

Complete Yaesu Line Station, comprising FT101 Tcvr with VK5 mods, fan, 10-160m, $550; FL2000 linear, $385; remote VFO FV101, $105; external spkr. box SP101, $32; cables and mike included. All mint cond. Looking for buyer in Sydney metrop. area who will take complete station. Offers invited. VK2AOW, QTHR. Ph. (02) 449 3538.

Bits and pieces from deceased estate. Telequipment service scope, $50; advance sig. gen., $40; Variac 0-280V 8A, $90; Heathkit SB610 monitor scope, $85; Heath Cantenna HN21 1kW, $25; Swantenna model 45, 10-80m mobile ant. with base, $105; set of 5 Hustler mobile whips, 10-80m, $70; 2m base loaded s/steel whip with base, $15; Q-cruft SWR/PWR bridge, $20; Omega TE7-01 antenna noise bridge, $32. VK2AQW, QTHR. Ph. (02) 449 3538.

Icom IC202 2m SSB with "Oscar" crystal, $150 ONO. Phil VK2BYX ex VK2YDY, QTHR. Ph. (067) 52 1185.

Like new FT101E, with Kenwood LF30A LP filter and Midland 23-136 P/SWR meter, connectors, little use, $735. VK4PJ, QTHR. Ph. (07) 399 2881.

TS520 AC/DC model CW filter, in as new condition, $650. VK3PR, QTHR. Ph. (056) 62 2711.

Complete RTTY station, in mint condition, as new. Includes: Model 15 page printer, Model 14 tape reperforator and tape distributor, all super sound proofed. Custom RTTY terminal OT600 Mk 2, loop supply, 110V power supply, patch cords, connectors and spare paper. Any inspection and trial. $550 — will consider exchange HF gear, contact VK2BAX, Orange, N.S.W. Ph. (063) 62 7210.

FT7 Tcvr, as new, $500 ONO. VK3NOW. Ph. (053) 59 0246, or VK3NMJ. Ph. (03) 550 4203.

Heathkit HR10 BRx, covers 80-10m, built-in 100 kHz xtal cal., excellent cond., $60 ONO. Teleprinter Creed 7B, complete with sound cover, good condition, $40 ONO. Contact D. Hides L60142, QTHR. Ph. (09) 275 2698.

Yaesu FT101, good condition, $550 ONO. Write J. Lee, Rywung, Qld. 4352. Ph. Rywung 3 U.

Hygain 18V 10m thru 80m base loaded vertical antenna, excellent portable antenna, $35. Morrie VK3BCC. Ph. (03) 581 1151.

Yaesu FT75BS and DC75BS power supply, two channels fitted, 80, 15 and 10m, seldom used, in original cartons, $375. VK6NAH, QTHR. Ph. (09) 446 3008.

Honda portable generator EM300, had little use, 240V 300W and 12V charging, $325. Peter VK3NRP. Ph. (056) 55 1087.

Communications Rx Tandy SX190, covers 3.5 to 27.5 MHz, in excellent condition, must sell, $180 ONO. D. Hughes L30853, QTHR. Ph. (053) 31 1138.

Dentron Tuner Jr. Monitor, ideal for mobile, as new, $95 ONO. Geloso 222R Tx, good order, $100 ONO. AWA Class C wavemeter, $15. VK3AKB, QTHR. Ph. (059) 44 3241.

Icom 22A in new condition, little used, channels fitted: 2, 4, 6, 8, 40, 50, complete, as new, $200. VK3QZ, QTHR. Ph. (051) 74 1797.

SBE34 80/15m Solid State SSB Xcvr., 125 watts, inbuilt AC/12 volt DC power supply, complete and excellent order, $350. Icom IC21A 2m FM base or mobile Xcvr., $175. Swan WM1500 in-line watt meter, 5/50/500/1500 watts, $55. VK3OM, QTHR. Ph. (03) 560 9215.

20 Mx Mono Band Yagi Hygain 204BA, 4 elements with BN86 balun, exc. condx., $140. VK3UV, QTHR. Ph. (03) 90 6424.

FRG7 Comm. Rx, mint condition, $275. VK3AOC, QTHR. Ph. (03) 88 2180.

Set of mobile antennas for 80m, 40m, & 20m (Hy-Gain), complete with fold-over mast, spring, swivel base, heavy duty bumper mount and instructions. Very good condition, $125. VK3AMK, QTHR. Ph. (03) 787 5581.

18 AVT Vertical Antennas, complete and in fair condition, $50 ONO. VK2GK, QTHR. Ph. (02) 623 8292.

WANTED

Geloso T/R G222, handbook or circuit required urgently please. Loan or purchase. VK4LN, QTHR. Ph. (071) 82 2675.

Has anyone a Geloso G209R Rx in reasonable condition, they are willing to sell? Contact VK4LN, 43 Garrick Street, Gympie. Ph. (071) 82 2675.

Aspiring Novice Candidates — the complete self contained Novice study kit — contains morse and theory — texts, tapes and 1000 typical exam questions. Real value for money, $15 posted, WIA VK2 Education Service, PO Box 109, Toongabbie 2146.

Collins 500 Hz bandpass filter, type F455FA09 and/or 500 Hz bandpass filter type F455FA05, both to suit 75S3 receiver. VK2AS. Ph. (02) 467 1784.

Ammeter AC 0-20 amperes or more, in good condition, VK3AVH, QTHR. Ph. (059) 88 8797.

Swan 500/700 VOX unit, channel 3 xtals to Ken KP202, price and particulars to T. Foster, 3 Sinclair Street, Beaufort. Ph. (053) 49 2028.

Txcvr for novice bands, 230V, no objection to QRP; antenna tuner, preferably with SWR meter; grid dip oscillator; all items commercial or home brew, age no bar, but should be in working order and at reasonable price. John Weir, 100 Wrigley Street, Maroochydore, Qld. Ph. (071) 43 3023.

6LQ6 six new tubes required. Details to Bob McKernan VK4LG, 16 Tanderra St., Brackenridge, Qld. 4017. Ph. (07) 269 5175.

Private collector is interested in swapping old tapes of old time Australian, English, American etc. radio and TV programmes and advertising commercials. Movie posters, stills and 16mm and 35mm films (complete or segments) from commercial films also wanted. Will exchange air checks from Australian and overseas radio stations. VK2ATJ, Box 140, Kensington, N.S.W. 2033.

FV80 or similar VFO, suitable FT75B mobile, state condition and price, cheque forward. VK6TL, QTHR. Ph. (09) 386 7692.

Sideband attachment for IC245, will pay purchase price if in good working condition. Adrian Lewis VK3YBZ. Ph. (057) 93 7028 bus.

Plugs with/without cables for No. 11 and 19 sets. 3BZ Rx. WWII Army type headphones. Pre-War morse keys and telegraphic gear, any type, condition. Write VK4SS, 35 Whynot St., West End, Brisbane, Qld. 4101.

18 AVT 80-10m Vertical Antenna required. VK3BJO. Ph. (03) 729 2602.

TRADE HAMADS

Broadcast Band Listeners: "English Shortwave Stations Audible In Australia" publication is available exclusively from Southern Cross DX Club (Inc.), G.P.O. Box 336, Adelaide 5001 for 3 x 20c stamps. Over 40 countries listed!

Are you looking for a yagi, 10-11 or 15 metres, mono or duo bander, gamma match, spare parts or single elements for modular design also available. Please ring VK3NCW (03) 388 7042 after 5 p.m. Werner Wulf, 92 Leonard Ave., St. Albans 3021.

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OBITUARY

LEN WORRALL **VK4WL**

Len passed away suddenly, after an illness-free life, due to a heart attack, with only eighteen months of retirement.

Len obtained his licence at about 18 years of age in Sydney and was active in Cairns, with the late Doctor Hewitt on CW before World War 2, after which he remained inactive until 1973.

CW remained his great interest.

Len is survived by his wife Rose, a married son and a married daughter.

By Peter Brown VK4PJ

WILLIAM GEORGE CLARK **VK3FY**

Bill passed away suddenly on 19th November 1978, after suffering a heart attack. Radio amateurs of the Bendigo area will greatly miss Bill, who was a valued friend of all. He was very active in WIA Midland Zone affairs, having been both President and Secretary.

Bill served in a Beaufighter Squadron in the RAAF in World War 2, and later at Frognall Signals Base. He obtained his licence post war, and since coming to Bendigo in 1952 had been active in many local activities. His hobby other than electronics, was a love of music. Bill was a church organist, and choral society member. He was a member of Legacy, and always helped local schools, scouts, in fact many, many people.

Bill's vocation was insurance, he was Assistant Manager of a large local office, and his ability and friendliness were well known.

He will be sadly missed by all of those who knew him, for he really was a fine man.

To his wife Daphne and his family, we extend our deepest sympathy.

N. Stilwell VK3ACN.

KEN MILLBOURN "SNOWY" **VK3CW**

We all regret the passing of our good friend and amateur "Snowy". Let us convey to his wife and family, our deepest sympathy.

A word about our friend "Snow".

Snow was an amateur of long standing, close to 30 years. He served with the RAAF during World War 2, with most of the time at Darwin.

Most Australian amateurs knew of "Snowy" via the little shop in Melville Street, Hawthorn. Here was a meeting place for amateurs and all those with a common radio interest, a cup of tea, a lot of natter, and a warm welcome.

Snow was a great supporter of the WIA, and for many years was Father Christmas at the children's treat. He was also a member of the Chelsea Life Saving Club, and performed the role of Father Christmas for the annual treat at Chelsea.

I feel "Snowy" was also Father Christmas to many amateurs, a kind, generous and honest man, a great feeling for his fellow man. I was proud to be his friend.

"Snowy" will be missed not only by amateurs but people in many walks of life.

Sadly for all of us.

Alan G. Smith VK3AN

NOEL ARNOLD **VK2OJ**

It is with deep regret that we record the passing of Noel Arnold VK2OJ, after a long and serious illness.

Noel had been licensed some fifty-one years, continuing active, except for a war break, until illness prevented him from operating.

He was most active on 20 metres CW — particularly with the United States.

He was one of the first amateurs in Albury district, from which he operated at all times, except for a few times mobile.

Noel was active in early radio club activities, furthering the interest of amateur radio by training younger aspirants.

He was a Life Member of the Quarter Century Wireless Association, New York.

To Noel's wife and family we extend our deepest sympathy.

Jack VK2AY

TED ISAACS **VK2ABO**

It was with deep regret that I learned of the passing of Ted Isaacs VK2ABO.

I remember him for being honest and friendly, but above all for his generous nature. He would readily give assistance, regardless of any personal inconvenience.

Amateur Radio is the poorer for his loss, and the absence of "apples, bananas and oranges" will leave an empty spot on the dial — Vale Ted.

N. A. Laffman VK2APL

Mr. CLAUD BURNS **VK4CB**

Claud, who was born in Maryborough in 1893 had been an active amateur radio operator for over 54 years and in fact was active on the air up to within a few days of his death.

His first transmission was in 1924 from Rabaul, using morse code and his first amateur radio operator's licence was issued at Kingaroy in 1927 and his first call sign was A4CB. This call sign was later changed to VK4ZY, the call sign which will now be so sadly missed on the air waves.

SILENT KEYS

It is with deep regret that we record the passing of —

Mr. W. G. CLARK	**VK3FY**
Mr. R. OHRBOM	**VK3OC**
Mr. C. MALONEY	**VK3NDE**
Mr. W. J. BREBNER	**VK3WZ**
Mr. R. A. ISAAC	**VK2ZAI**
Mr. V. H. WILSON	**VK2YW**
Mr. N. ARNOLD	**VK2OJ**
Mr. R. SATCHELL	**VK2BZS**
Mr. M. J. O'BRIEN	**VK2ZMO**
Mr. A. H. TODD	**VK4HT**
Mr. L. A. WORRALL	**VK4WL**
Mr. C. E. J. BURNS	**VK4ZY**

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